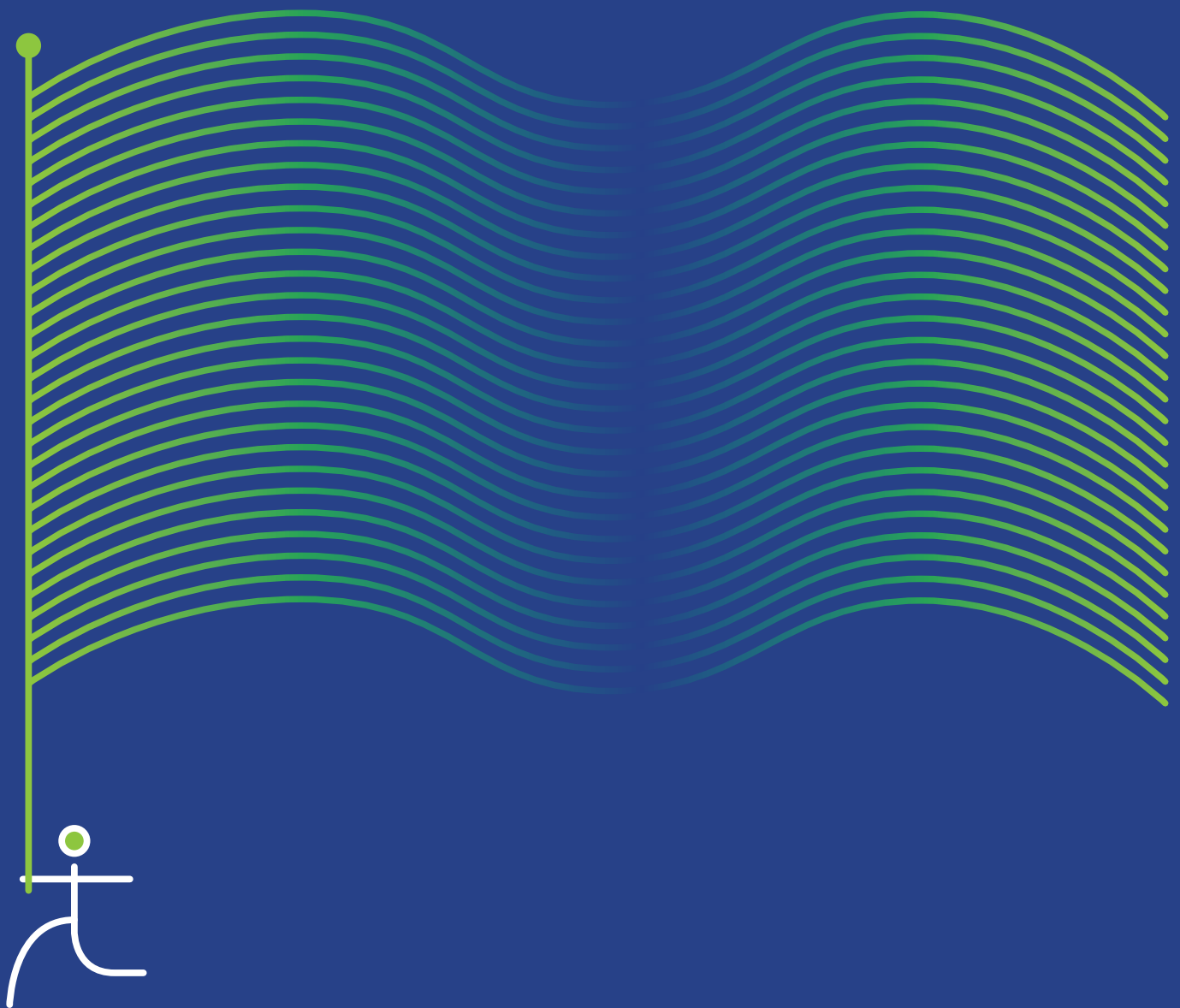


# Sovereign Transition:

## Unlocking the Investment Opportunity



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**About the Climate Bonds Initiative:** Climate Bonds is an international investor-focused not-for-profit organisation working to mobilise the bond market for climate change solutions. It promotes investment in projects and assets needed for a rapid transition to a low-carbon and climate-resilient economy. The mission is to help drive down the cost of capital for large-scale climate and infrastructure projects and to support governments seeking increased access to capital markets to meet climate and greenhouse gas (GHG) emission reduction goals.

### Key terms and definitions

**Just transition:** A just transition ensures equal access to the opportunities generated by the climate transition and prevents damaging inequalities arising from climate change and climate action. Just transition principles have been defined by several recognised sources, which include the International Labour Organisation (ILO) just transition guidelines.

**Nationally determined contributions (NDCs):** The Paris Agreement requires each Party to the Agreement and the United Nations Framework Convention on Climate Change (UNFCCC) to prepare, communicate and maintain successive nationally determined contributions (NDCs) documenting the reduction in national emissions and climate change adaptation that the country intends to achieve.<sup>1</sup>

**Sovereign:** A sovereign is interpreted here as a national territory, which includes public and private actors and is overseen by a national government that can issue bonds. It also includes sub-sovereign entities such as regions, departments or other administrative branches of a national sovereign.

**Sovereign transition planning:** The processes that a sovereign puts in place to ensure that all government actions are aligned with its climate objectives.

**Sub-sovereign:** Local regions, municipalities, or cities overseen by a subnational or devolved authority.

**Sovereign climate action:** Action planned and taken by sovereigns on mitigation and adaptation.

**National development bank (NDB):** A financial institution created by national governments to finance the country's development and to fulfil certain policy objectives.

# Summary



**This report presents best practice recommendations for sovereigns to plan and finance transition** that can drive a robust, economy-wide transition to low-carbon development with an associated pipeline of transition investment opportunities, and position the sovereign to access the finance needed for that transition.

**Sovereigns can build investor support for their planning efforts and financing strategies, which is particularly important in a fiscally constrained environment.** The recommendations in this paper are intended to help accelerate sovereign, and hence economy-wide, climate action and investment, within the current fiscal constraints faced by most governments globally. This can be mutually beneficial for sovereigns seeking rapid and sustainable development and investors managing their long-term risks and returns.

**Sustainability and other investors have a direct stake in sovereigns' fiscal sustainability and a vital role to play in advocating for better sovereign transition planning efforts through their stewardship. They are currently financing sovereigns with USD65tn of outstanding sovereign bond debt globally.** Government climate action contributes to long-term fiscal sustainability in a world of increasing materiality of climate-related financial risks and emerging regulatory requirements to assess sustainability and climate risk across bond holdings.<sup>2</sup>

**These recommendations are applicable to all sovereigns, regardless of development level, as they set out best practice for all economies.** Governments of countries classified as frontier markets may require capacity building and support from MDBs or other actors in development of these processes. Where capability is particularly limited, processes can be introduced gradually.

Figure 1 (page 6) summarises all the recommendations made in the paper.

## 1. Improving sovereign transition planning for the real economy

The five main elements of credible sovereign transition planning are:

- Targets and commitments,
- Whole-of-government approach,
- Green public financial management (PFM),
- Use of the whole range of policy tools, and
- Transparency.

These elements are aligned with the Climate Bonds hallmarks for credible corporate transitions, and national transition planning guidance and frameworks presented by Transition Pathway Initiative (TPI), OECD, UNFCCC, NDC Partnership, among others.

### 1.1. Boost sovereign transition planning efforts with robust targets and commitments

**Targets provide important direction for transition planning and enable communication of commitment to transition.** Nationally determined contributions (NDCs) form the basis of transition plan commitments but their ambition, which collectively does not align with the goals of the Paris Agreement, will need to be raised. Determining to what level is challenging, given the agreed principle of common but differentiated responsibilities embedded in the Paris Agreement, which can only accurately be assessed at the global level, not at individual country level.<sup>3,4</sup> Third-party national pathways such as those used in the ASCOR framework or by Climate Action Tracker can provide insight here, as can sectoral pathways set out in climate taxonomies, such as the Climate Bonds Taxonomy or science-based local taxonomies.<sup>5,6</sup>

NDCs also do not always provide 2050 targets, cover all greenhouse gases (GHGs), or cover all economic sectors representing material emissions, all of which are important for robust national target setting.<sup>7</sup> Methane abatement targets can indicate commitment to limiting near-term global warming, given the importance of methane abatement to safeguarding Paris Agreement ambitions.

Breadth of targets is also important, as resilience and just transition efforts are vital to reducing the potential impact of climate-related risks.

### 1.2. Aim for a whole-of-government approach to ensure successful planning and implementation

**A whole-of-government approach to transition policymaking is necessary for policies to be coordinated, credible, and efficient.** This approach means that every government ministry or department, and relevant subdivisions are involved in climate action, versus a select few covering power, transport, and industry. This approach is central to success of green public financial management (PFM).

**A centre of government (CoG) can support coordination, strengthening collaboration and climate action across government.** The CoG will have overall responsibility and oversight of sovereign transition planning processes including green PFM.

### 1.3. Align government core financial processes with green to align all government functions with the transition

**A comprehensive approach to transition is required for a prosperous, sustainable, and stable future that delivers both development and climate goals.** Building transition into existing planning processes can ensure familiarity and facilitate take-up, impact, and speed.

Public financial management processes run at the core of government, and through all line ministries, in all countries, and can be used to integrate climate action into existing government planning, budgeting, and oversight processes. These can help deliver all encompassing, consistent, and robust transition strategies, thereby more rapidly unlocking a vast array of new investment opportunities. However, despite being recognised for several years as good policy practices by for instance the OECD, they are still implemented in only a handful of countries.

A green budgeting approach means that the climate impact of government policies across the board is measured and taken into account when allocating budget. While financial planning sets out how direct sovereign financing of the transition is achieved, sovereigns face limitations in the extent to which taxes and financial market money-raising can be planned in the medium and long term.

### 1.4. Use all available policies to deliver a whole-economy transition

**Green PFM processes can help to align all policies with climate action.** The use of a range of policies including financial, market-based, non-market based, financial regulation, de-risking, monetary, and international policy can help ensure a smooth and coherent transition. Policies such as planning laws and public procurement requirements may not have been considered as transition policies but can be used to tilt the wider economy to transition.

**The same taxonomy or other sectoral pathways that guide robust target setting will also act as a lynchpin to transition policy implementation.** Taxonomies can support green budgeting, used to identify climate positive or negative budget lines, and have begun to be used to do so. This can also inform sovereign green bond framework development. Taxonomies can also guide policies that precipitate transition action in the private sector, for example by aligning incentives such as subsidies and guarantees to enable actors to meet taxonomy thresholds.

### 1.5. Prioritise transparency efforts to build investor support

**Transparency efforts are an important line of communication to build investor confidence in the transition and foster their support for financing strategies.** A clear line of responsibility within government for transition policies, as well as scrutiny by an independent audit body (e.g., the climate change committees in the UK and France) provides confidence in direction of travel. Government auditors can monitor and report on green PFM progress and their mandates can be extended to include climate, both in terms of quality assuring green budget reports and conducting climate performance audits.

## 2. How sovereigns can finance the transition

**Development market (DM) and emerging market (EM) sovereigns lack finance to fund their transition.** For EMs, the debt overhang is a frequent limitation to sovereign access to transition finance from capital markets, particularly for mobilising private finance to meet their climate commitments, and deliver on NDCs.<sup>8</sup> While worse in EM economies, debt to GDP ratios in many DM economies are at levels associated with lower growth. The imperative to spend less to reduce debt to GDP ratios strongly limits transition investment.

### 2.1. Explore alternative solutions for transition spending under fiscal constraint

Carving out sovereign transition spending from deficit calculations is one policy avenue that has been explored to resolve the debt overhang issue for transition investments. Carve outs for defence spending, where governments are allowed to increase spending beyond limits set in fiscal rules, set a precedent for this.<sup>9</sup>

### 2.2. Utilise GSS + bond markets to fund transition

**Green and sustainable sovereign bonds are proven instruments for sovereign financing of transition and transparency over transition efforts.** Recent innovations in capital market instruments such as bonds dedicated to transition finance (Japan GX), sovereign sustainability-linked bonds (SLBs) (such as Slovenia) have been successful. However, narrowing fiscal space makes large scale issuance more difficult, hence the need to explore other potential routes for sovereigns to finance their transition.

### 2.3. Leverage public financial institutions to provide long-term climate investment and mobilise private capital for transition

Aligning national development bank (NDB) mandates and portfolios with climate targets can ensure development investment is coordinated with central government spending and priorities. Crucially, greater use of capital mobilisation tools by NDBs can enable crowding in of private finance to climate projects.

**Sovereign wealth funds provide an opportunity for governments to help fund their net-zero transition.**<sup>10</sup> They are well suited for strategic long-term investment in the net-zero transition. However, a lack of climate targets for the fund, as is the case for many across the globe, could be a point of concern for investors on consistency of government commitments.

### 2.4. Leverage the supporting role of central banks and financial regulators in financing the transition

**Monetary policy tools can support and encourage investment in the transition, and central banks around the world already use them to do so.** However, such practices are nascent and can be constrained by legal mandates in several jurisdictions. Where central bank credit guidance programmes exist, these can be aligned to direct lending to transition-related spending. However, interventionist policies carry market distortion risks and should be carefully evaluated against other less distortive incentive measures.<sup>11</sup>

**Several countries, such as China and South Korea, use, or have used, monetary financing to make cheap, stable non market capital available to a number of policy investments.**<sup>12</sup>

The replication of such examples should be explored on a selective basis while noting that such policy and regulatory choices will not be possible in many advanced economies due to various existing regulations.

*An initial version of this report was subject to engagement with Climate Bonds Initiative (Climate Bonds) members and partners, and a public consultation phase that closed at the end of August 2025. We are grateful for the feedback provided during consultation and integrated the comments and suggestions received. We are keen to engage further with stakeholders willing to pursue the conversation and invite interested readers to contact us for feedback and dialogue at [policy@climatebonds.net](mailto:policy@climatebonds.net).*

## Figure 1: Key elements of sovereign transition planning

### Section 1: Improving sovereign transition planning for the real economy

#### 1.1 Boost transition planning efforts with robust targets and commitments

- 1.1.1. Ambitious Paris Agreement-aligned targets to meet international agreements
- 1.1.2. Breadth of targets, beyond CO<sub>2</sub> emissions reduction provides impact and coherence
- 1.1.3. Sectoral targets provide additional clarity on the shape of the country's transition
- 1.1.4. Targets for the short, medium and long term evidence commitment
- 1.5. Legal commitment to transition target improves confidence

#### 1.2. Aim for a whole-of-government approach to ensure successful planning and implementation

- 1.2.1. Taking a whole-of-government approach is key to successful planning and implementation

#### 1.3. Align government core financial processes with green to align all government functions with the transition

- 1.3.1. Cross-cutting green budgeting to ensure the transition is sustainable
- 1.3.2. Integrate green financial planning to avoid budget shocks

#### 1.4. Use all available policies to deliver whole economy transition

- 1.4.1. Align the policy mix alongside green PFM practices for fiscal efficiency
- 1.4.2. Provide clarity to the market via transition policy roadmaps
- 1.4.3. Establish or adopt a robust internationally interoperable taxonomy to act as a lynchpin to transition policy design and implementation

#### 1.5. Prioritise transparency efforts to build investor support

- 1.5.1. Ownership
- 1.5.2. Monitoring and reporting within existing processes

### Section 2: How sovereigns can finance the transition

#### 2.1. Explore alternative solutions for transition spending under fiscal constraint

- 2.1.1. Investigate carving sovereign transition spending out from fiscal deficit limits
- 2.1.2. Article 6 trades could provide a potential source of financing for EM sovereigns

#### 2.2. Utilise GSS + bond markets sovereigns to fund the transition

- 2.2.1. GSS+ labelled debt has developed as a successful capital markets segment to finance the transition
- 2.2.2. SLBs are specifically tailored to anchor transition targets in long term government policies

#### 2.3. National development banks and sovereign wealth funds can provide long-term investment and mobilise private capital for transition

- 2.3.1. National Development Banks can crowd in private investment
- 2.3.2. Sovereign wealth funds can target transition investment

#### 2.4. Assess the supportive role of central banks and financial regulators in financing the transition

- 2.4.1. Encourage green lending via green asset purchase
- 2.4.2. Adjust collateral frameworks
- 2.4.3. Climate-tilt credit operations
- 2.4.4. Direct lending to priority transition sectors
- 2.4.5. Monetary financing could provide a solution for sovereigns to access low-cost capital to finance the transition

# Introduction

This report presents a set of best practice recommendations on sovereign transition planning to support sustainability investors in their sovereign engagement strategies. It can also inform sovereigns on the transition planning processes they can implement to improve their ability to drive and finance the transition. Robust planning will not only improve the sustainability credentials of the sovereign itself, but also provide the corporate and financial sectors with more transition investment opportunities.

This is a policy report aimed at supporting sovereigns and investors. While it can help assess the strength of a sovereign transition action, by identifying which elements may be present or missing in transition planning, it is not a transition scoring framework to assess sovereign transitions. Various assessment frameworks are highlighted in the report and mapped in Appendix 2 that can be used in assessment of sovereign transition progress. Other finance stakeholders such as credit rating agencies and banks arranging and selling sovereign debt may also find this report relevant.

This paper is applicable to all sovereigns, regardless of development level, as it sets out best practice for all economies. Governments of countries classified as frontier markets may require capacity building and support from MDBs or other actors in development of these processes. Where capability is particularly limited, processes can be introduced gradually.

## Sovereign transition planning is an emerging practice

**Many sovereigns and their investors increasingly understand the need for long-term planning for the transition, to deliver sustainable development and growth for the long term, including unlocking the investment needed to deliver that goal.** Sovereigns have diverse capabilities to carry out ambitious transition planning. Few sovereigns will have developed all of the elements laid out in this report, although various countries do demonstrate good practice in certain elements.

**Several sovereigns have developed substantial elements of transition planning.** These often span multiple policy documents and vary significantly in level of coverage. Appendix 3 provides a high-level mapping of the scope of a limited number of sovereign transition planning approaches reviewed. While examples of sovereign practice are given throughout the paper, the credibility and alignment of existing sovereign transition plans is not evaluated in this paper.

**Globally, existing climate targets, policies, and investments are not sufficient to meet the Paris Agreement and limit warming to well below 2°C.**<sup>13</sup> At present, nationally determined contributions (NDCs) are the main route by which countries frame their climate priorities with governments updating their NDCs in 2025 to advance their climate goals. However, for most countries, NDCs have not been effective in mobilising public and private capital at the speed and scale needed for the transition to a low-carbon, climate resilient economy. In part, this is because NDCs focus on high-level targets, not the detailed plans for how these targets will be achieved or the investment required, and they do not cover all sectors of the economy. They also do not cover how to finance necessary investment.

## Investor engagement strategies can support sovereign transition planning

**Government climate action is an important determinant of future economic prosperity by mitigating potential climate change-related economic losses and developing a resilient growth pathway,** which is essential to driving long-term sovereign debt sustainability. Implementation of strong climate-related financial policies has been found to improve financial stability. A study of 88 countries from 2000–2020 found stronger climate-related financial policies tend to be associated with reducing credit risk and ensuring adequate liquidity buffers within the banking system.<sup>14</sup> An independent review of the UK's net-zero target concluded that the UK could see 2% additional growth in GDP from the clean energy transition through 'the benefits from new jobs, increased economic activity, reduced fossil fuel imports and cost savings'.<sup>15</sup>

**Investors are financing sovereigns via the fixed-income market at significant levels: in 2025, outstanding sovereign bond debt is USD65tn globally.**<sup>16</sup> As such, sovereign bondholders have a direct stake in sovereign fiscal sustainability to which end they can play a vital role in encouraging government climate action. Importantly, this applies to both sustainable debt holders as well as vanilla sovereign debt holders due to increasing materiality of climate-related financial risks and emerging regulatory requirements to assess sustainability and climate risk across bond holdings.<sup>17</sup> However, there is currently little evidence of investors including sovereign bonds in their net-zero strategies, which is partly driven by limited engagement opportunities, including restricted access to relevant officials, variation in governance structures, and limitations in influence due to size of holdings.<sup>18,19</sup> As of 2020, 60% of signatories to the UN Principles for Responsible Investment (PRI) do not engage with sovereign issuers at all or with less than 5% of issuers on ESG issues.<sup>20</sup>

**Sovereign bondholders need to assess physical and transition climate-risk exposure across sovereign debt holdings.**<sup>21</sup>

All sovereigns are exposed to climate-related financial risks in the near, medium, and long term, resulting from climate volatility and extreme climate events in every region of the world.<sup>22</sup> Climate-related risks are increasingly recognised as an important threat to long-term fiscal sustainability: climate change can create significant impact on the fiscal position of a country through well-documented channels.<sup>23</sup> Such pressure can be caused by both physical and transition risks. Action planned and taken by sovereigns on mitigation and adaptation (together, climate action) and how those mitigate the impact of climate-related risks are hence a key determinant of climate-related financial risk exposure, and ultimately debt sustainability. Those are the mechanisms at the core of the reason why sovereign bondholders should consider not just climate risks, but also how sovereigns mitigate them through their transition planning.

**Investor sovereign engagement strategies should be adapted to enable evaluation of sovereign transition planning.**

Sovereign bondholders regularly engage with government representatives to gain insight into fiscal and monetary policies, which informs bond pricing and investment decisions. Some are leveraging and adapting this engagement to include discussions of a government's climate action and transition planning. Engagement on transition planning and financing processes can improve investor understanding and confidence in future fiscal sustainability and therefore repayment of sovereign bond holdings, while contributing to meeting sustainability investment preferences.

**Overall, engagement from sovereign bondholders on climate and sustainability issues needs to be scaled up and advanced, but investors in emerging market sovereign bonds may have a head start,** as they have traditionally deployed more active engagement strategies.<sup>24,25</sup> This may make them better positioned to meaningfully engage on sovereign climate actions than investors in bonds issued by advanced economies.

The recommendations in this paper can be used by investors to better calibrate and design their engagement strategies with governments.<sup>26</sup> They can help investors identify key points of engagement and reduce resource intensity of engaging on a wide-ranging and complex topic.

## Governments' core financial processes and a whole-of-government approach as the foundations of robust sovereign transition planning

**Sovereign transition planning, aligning all of a government's activities to climate objectives as well as ensuring that its climate action supports the transition of the economy, is a highly complex task.**

It requires alignment of all government entities (ministries, agencies, etc.), in addition to all of its policies, activities and, crucially, financial flows. This requires coordination of actions towards a single common objective that needs to be integrated into every decision made across the government. While climate targets tend to be comprehensive and long-term, and in many countries included in legal texts, in most countries, it is unlikely that a government would be able, or allowed to, set up a comprehensive and exhaustive long-term transition plan, thereby tying up subsequent governments to a single document and set of actions. Rather than focusing on what government should do over the next several decades and pulling together in a plan, this report focuses on how a government's actions can be climate-aligned by default.

**Core financial processes, present in some form in all countries, already coordinate action across a government's activities, and can be leveraged to support sovereign transition planning.**

Collectively referred to as public financial management (PFM), these processes aim to ensure effective, efficient, and transparent use of public resources. It encompasses the mechanisms through which public resources are collected, allocated, spent, and accounted for, covering the whole budget cycle, revenue collection, public procurement, and audit practices. Green PFM is the integration of climate considerations throughout the budget cycle. It incorporates three of these elements: whole-of-government approaches, green budgeting, and financial planning. It also informs target setting and alignment of the wider policy mix (see Figure 3).

**The adaptation of existing PFM processes can gradually promote climate-aligned policies throughout and beyond the budget cycle.**<sup>27</sup> Specifically, green PFM can deliver sovereign transition action through:

- Ensuring transition is included across all budgets: green PFM expands responsibility for climate action beyond the Ministry of Environment, to include the Ministry of Finance (MoF) and other departments. UNDP analysis indicates that NDCs developed in collaboration with MoFs are more fiscally sound.<sup>28</sup>
- Ensuring credibility and transparency of climate action: PFM and other auditing practices can help develop transparency on transition, and inform other transparency efforts such as GSS+ bond impact reporting (see 1.5.)
- Enabling access to breadth of financing sources for transition: facilitating sovereign GSS+ issuance, ensuring policies encourage private investment in transition, and improving fiscal credibility that improves access to international finance (see section 2).
- Informing climate ambition: enables regular evaluation of climate action and transition capability, informing overarching climate targets (1.1.)

**Combined with a ‘whole-of-government’ approach and the deployment of the complete range of policy tools, green PFM can support coordination of transition efforts within governments as well as throughout the economy.**

The transition requires transformation of all economic sectors, driven by climate-aligned policy and spending by every government department. This can be supported through a whole-of-government approach, increasing alignment and reducing unintended consequences, which goes beyond prioritised line ministries and sectors, and toward a whole-economy transformation.

**The five essential elements of sovereign transition planning, including green PFM and a whole-of-government approach, as outlined in Figure 2, are a sovereign variant on Climate Bonds’ *Hallmarks for a Credible Transition*, which were originally designed for non-financial corporate transition plans, but since also applied to bank transition plans.<sup>29</sup> They are aligned with other global transition principles such as the Transition Plan Taskforce Disclosure Framework.<sup>30</sup> As such, they are also a relevant foundation for organising the key elements of sovereign transition planning, allowing investors to draw on existing understanding. This use of a consistent framework promotes a constructive feedback loop between sovereign and private sector transition planning. The elements in Figure 2 are also mapped to the framework proposed by the Transition Plan Taskforce. While the key elements of sovereign transition plans can be categorised or presented in different ways in different frameworks, there is broad consensus on the importance of these elements, as illustrated in the mapping in Appendix 2.**

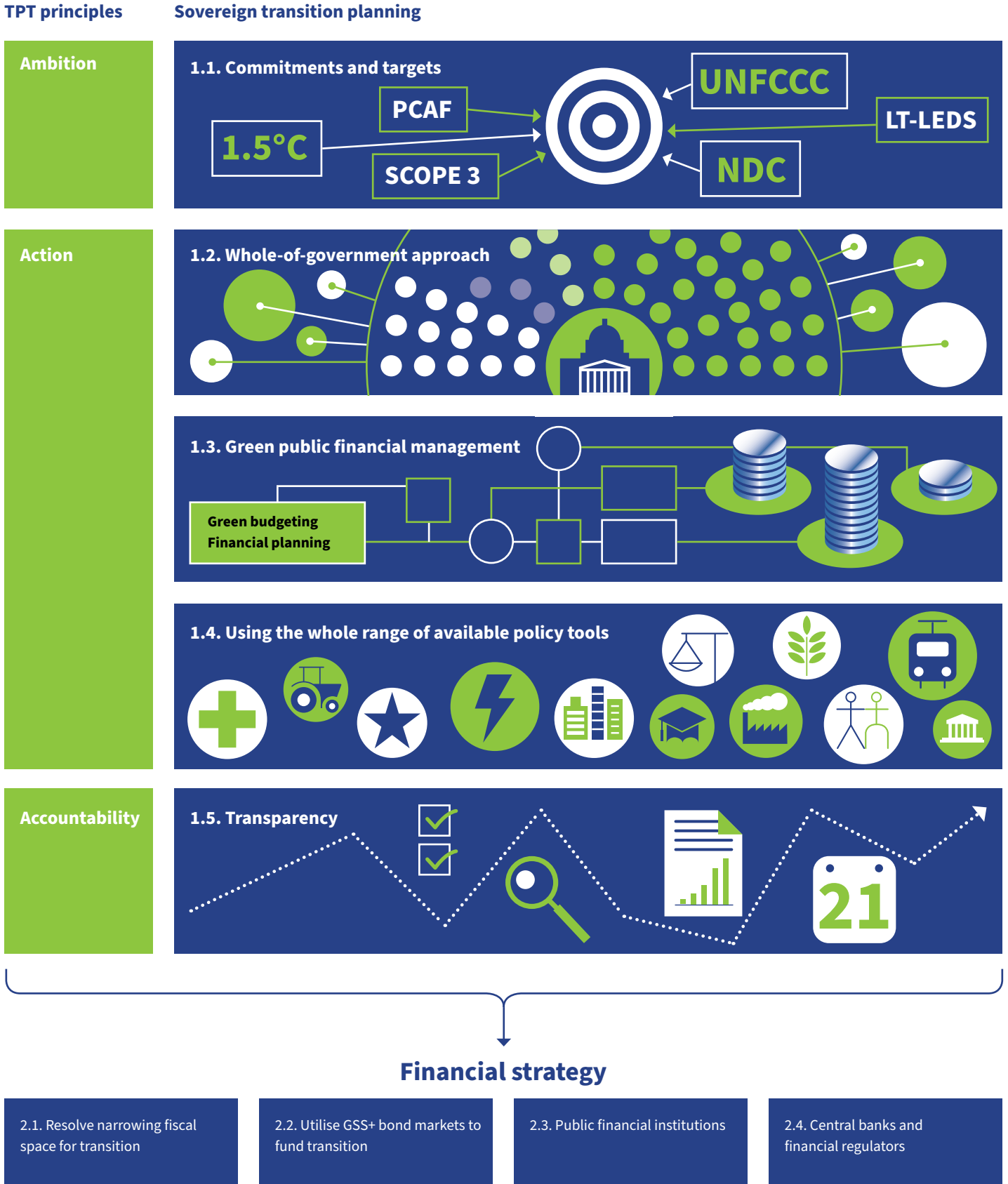
**The five elements of sovereign transition planning complement and augment existing sovereign guidance.**

Existing guidance varies in coverage and scope; the UNFCCC information to facilitate clarity, transparency, and understanding (ICTU) of NDCs focuses on target setting; the Assessing Sovereign Climate-related Opportunities and Risks (ASCOR) framework focuses on real economy policy; and the NDC Partnership and Green Climate Fund (GCF) framework focuses on investment planning. Climate Bonds mapping of selected sovereign transition planning (summarised in Appendix 3) demonstrates that there is action being taken by governments on each item.

**Most governments face structural constraints in long-term planning, including for the transition, so green PFM and a whole-of-government approach are the first steps towards longer-term financial planning for the transition.**

Most government action around the world is structured around yearly budget cycles and some governments are also structured around short-term election cycles. Structurally, this complicates long-term planning, which is required to reach climate objectives beyond a five year term and even several decades away. Alignment of government action in the short to medium term is the first step towards a sovereign capability to enact longer term plans, both in terms of the deployment of the whole suite of policy tools as well as the financing of its longer-term actions.

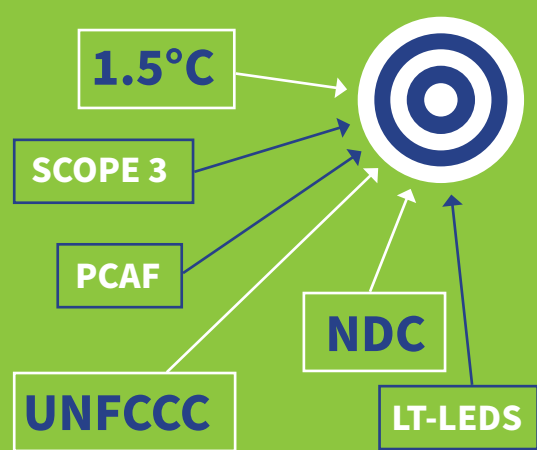
Figure 2: How the main elements of credible sovereign transition planning relate to international transition frameworks



Source: Climate Bonds Initiative, based on the Transition Plan Taskforce Disclosure Framework and Climate Bonds Hallmarks for a Credible Transition.<sup>31</sup>

# 1. Improving sovereign transition planning for the real economy

## 1.1. Boost sovereign transition planning efforts with robust targets and commitments



### Targets provide important direction for transition planning and enable communication of commitment to transition.

While effective climate policy and investment can be implemented ahead of the implementation of overall targets, targets provide a way to validate their ambition.

### 1.1.1. Ambitious Paris Agreement-aligned targets to meet international agreements

#### National commitments and targets should be aligned with the global climate goal enshrined in the Paris Agreement.

Those targets aim to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C.

**NDCs are the foundation for sovereigns to achieve the goals of the Paris Agreement, informing all other transition plans and tools.** However, ambition must be raised as, collectively, current NDCs are not aligned with the Paris Agreement. The global stocktake finds full implementation likely to result in a 2.1-2.3°C peak warming, and 2.4-2.8°C without conditional elements.<sup>32</sup> Box 1 discusses the challenges of determining Paris-alignment at a national level, and tools and resources to support target-setting.

Commitments and targets should also cover a longer time frame than is traditionally the case with NDCs that have a 10-year timeframe, and should be renewed every 5 years. Long-term, low-emissions development strategies (LT-LEDS) in comparison often cover time periods up to 30 or 40 years. They have been developed by 78 Parties to the Paris Agreement and can be an important element of transition planning, given their longer time horizons.<sup>33</sup>

#### Sovereigns typically reference the territorial-emissions approach adopted by the UNFCCC, however this does not provide a comprehensive picture of sovereign emissions and required transition efforts.

The territorial-emissions approach generally accounts for emissions produced domestically. Disclosure of consumption emissions i.e., scope 1, 2, and 3 emissions minus exported emissions, gives a fuller picture of climate-risk exposure. This approach would be in line with Partnership for Carbon Accounting Financials (PCAF) methodology for accounting for emissions associated with sovereign debt.<sup>34</sup> This is particularly relevant for many developed countries for which consumption-based carbon emissions (i.e., whole value chain) may be much larger than production-based carbon emissions (i.e., in country).<sup>35</sup> For example, while the EU accounts for 6% of global energy-related methane emissions, its imports account for around 30%.<sup>36</sup> Tackling supply-chain emissions is an element often overlooked in sovereign transition plan guidance.

#### Treatment of consumption-based emissions is a major indicator for investors on whether the sovereign is addressing value-chain emissions and addressing associated climate-related risk exposures.

Scope 3 emissions in corporate transition plans should be addressed in sovereign transition planning because an effective transition requires sovereigns to address supply chain emissions. This is particularly important for developed market sovereigns, to avoid carbon leakage impacts.

## Box 1: Tools and resources for evaluating strength of national targets

Paris alignment can only accurately be assessed at the global level, making it difficult to accurately evaluate the strength of national targets. Avoiding catastrophic climate change is a global collective effort, with no clear independent emissions reduction pathway for each country because national carbon budgets are negotiated as part of the NDC process, according to national decarbonisation capacity and capability, fair share, and historical contributions. Integrated modelling has also not allocated global carbon budgets to the national level.

That said, several organisations have developed 1.5°C national pathways. The ASCOR framework evaluates some countries' national targets against the 1.5°C national pathways developed by Climate Analytics based on IPCC pathways.<sup>37</sup> However these have not been developed for all countries. For those considering developing Paris-aligned national pathways, guidance is needed on how a robust, science-based local pathway can be developed.

National sectoral targets should be compared and aligned with a science-based national taxonomy where one exists.

In the absence of a robust national pathway, it is useful to benchmark national targets against global emissions scenarios such as the IEA Net Zero Emissions scenario to assess their strength. Climate Action Tracker evaluates NDCs of a select group of countries against 1.5°C pathways derived from IPCC Integrated Assessment Models.<sup>38</sup> IIGCC has developed guidance on assessing country targets based on regional pathways and the principles of common but differentiated responsibilities and respective capabilities as embedded in the Paris Agreement.<sup>39</sup> Additionally or alternatively, national sectoral targets can be benchmarked against global, science-based taxonomies developed by organisations such as Climate Bonds.

For some jurisdictions, the focus will be on mitigation, in others 'green first growth'; sustainable development without increasing emissions. As an alternative or addition to benchmarking against a global pathway, comparison to a baseline of existing and historical emissions levels can help with evaluation of the level of ambition. The UNFCCC's ICTU of NDCs describes the importance of consistency in reference year and transparency in its selection.<sup>40</sup>

Targets for objectives such as resilience, biodiversity, just transition, air pollution, water, and circular economy will be more challenging for investors to assess as there are no clear global targets against which to benchmark. However, increasingly regional or national taxonomies are incorporating these factors with thresholds and criteria that sovereign targets can reference.

Tools to assess the credibility of resilience initiatives are being developed, such as the Climate Bonds Resilience Taxonomy (CBRT).<sup>41</sup> Assessing such objectives also increases due diligence efforts, expanding the scope of documents that have to be assessed, such as national biodiversity strategies and action plans (NBSAPs). However, open-source platforms exist for validation, such as Aqueduct for water-stress risks.<sup>42</sup>

### 1.1.2. Breadth of targets, beyond CO<sub>2</sub> emissions reduction, provides impact and coherence

**Mitigation targets need to be set for all GHGs.** Methane is a highly potent GHG with a global warming potential 84-87 times higher than that of CO<sub>2</sub> and accounts for 30% of total warming since the Industrial Revolution.<sup>43</sup> While 95% of NDCs include methane in overall mitigation targets, only 20% assess mitigation potential at any level and only 19% include fossil fuel sector abatement measures.<sup>44</sup> For high methane-emitting states, separate methane targets are needed to propagate targeted policies in highest emitting sectors.

**The integration of resilience strategies and programmes is critical to the long-term viability and coherence of a sovereign transition plan and should also be reflected in its targets.** Resilience investments are likely to have a significant impact on growth, with global GDP losses estimated at 5.1% per year without adaptation.<sup>45</sup> This will vary significantly globally and regionally, with expected losses much higher in certain countries. National adaptation plans (NAPs) have been developed by 63 developing countries.<sup>46</sup> The NAP process was established under the Cancun Adaptation Framework, enabling Parties to identify medium- and long-term adaptation needs, and develop and implement strategies and programmes to address those needs. **This would also have the benefit of informing investors of expected vulnerability to physical climate impacts and adaptation efforts to reduce them.**

Doing so will also facilitate the investment flow for resilience. Globally, resilience investment requirements are expected to reach USD212bn by 2030 and USD239bn by 2050 with current flows at only 35% of the 2030 estimate<sup>47</sup>

While most NDCs include resilience alongside mitigation objectives, additional goals such as just transition, water, and biodiversity are less common. Given the transformational ambition of transition planning, and the need for sovereigns to deliver social development or nature protection for example, sovereign transition plans ought to include these wider targets.

Table 1: Importance of short-, medium-, and long-term targets

| Target type | Timeframe                   | Assessment priority  |
|-------------|-----------------------------|--|
| Short term  | Annual                      | <b>Establishes confidence in whether action will be taken in the immediate term.</b> Short-term action is critical given the need to substantially reduce emissions globally by 2030 to have any chance of avoiding the worst impacts of climate change. There is also a need to adapt to already-present climate impacts. It is also important to initiate the long-term investments and actions required by 2050 and avoid stranded asset and maladaptation risks. Therefore, the greatest granularity on short-term targets and action should be provided as sovereigns will have the most clarity over this timeframe. |
| Medium term | 2030–2035<br>NDC timescales | <b>Assess the necessary forward thinking to continue the delivery of transition beyond the short term.</b> Submitted 2035 NDCs which do not increase 2030 ambitions have credibility issues due to the implied major acceleration in emissions reductions required from 2030–2035; 41% in the case of the United Arab Emirates (UAE), for example. <sup>52</sup>   |
| Long term   | 2050                        | <b>Fully assess Paris alignment and ambition.</b> Long term planning is necessary to be able to spread the significant cost of the transition over the longest possible term. This does not mean investing later but making the yearly cost of investment more affordable to economies and societies. Sovereign green, social, sustainable or sustainability-linked (GSS+) issuance can help support this.   |

### 1.1.3. Sectoral targets provide additional clarity on the shape of the country's transition

**Sectoral targets provide greater information on how the sovereign will transition,** providing information on the shape of the country's transition and revealing investment opportunities. Investors have called for greater granular detail on the sectoral pathways in NDCs in order to improve their investibility.<sup>48</sup> These targets should align with sectoral pathways and national taxonomies that take into account technology, and policy enablers and barriers, and hence provide an important anchor for private sector plans. Such targets can help to ensure that all government departments are taking action on climate (see section 1.2.1. below). This granularity can improve confidence in economy-wide targets and help with identification of wider transition investment opportunities.

Incorporating bottom up sectoral target setting into top down national targets is important to viability of national commitments. Co-development of target setting is crucial to ensuring ambition and Paris Agreement alignment alongside viability and enables identification of where certain sectors may require accelerated transition to compensate for greater challenges in others.

### 1.1.4. Targets for the short-, medium- and long-term evidence commitment

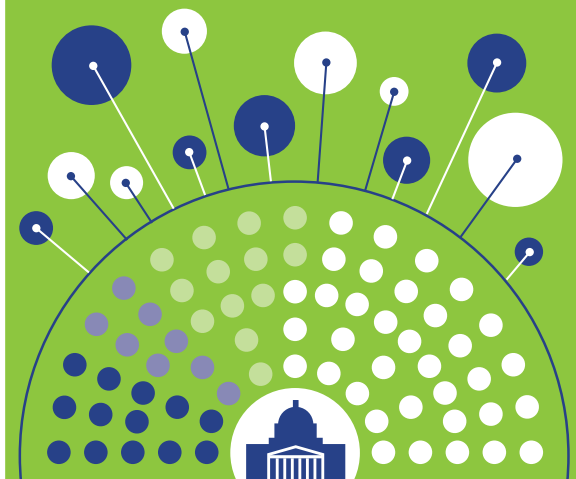
Science-based short-, medium-, and long-term targets provide key information on the nature and ambition of transition (see Table 1). However, currently only 50% of NDCs provide targets up to 2050.<sup>49</sup>

### 1.1.5. Legal commitment to transition targets improves confidence

**Legislated climate targets improve confidence in the longevity of commitments by making clear that the sovereign is ready to be held liable for meeting the targets and reducing the likelihood of them being dropped by new administrations.** Climate targets and commitments made solely as a public statement will not hold the same weight as those in official submissions to multilateral processes such as the UNFCCC or enshrined as laws.

**Climate laws also provide certainty of policy introduction as they can also set legal obligations for successive governments to implement specific policies such as carbon budget planning** e.g., the UK Climate Change Act.<sup>50</sup> Laws can set the groundwork for wider climate policymaking. ASCOR assessment of 70 sovereigns in 2024 confirmed that 40 have passed a climate framework law or equivalent.<sup>51</sup>

## 1.2. Aim for a whole-of-government approach to ensure successful planning and implementation

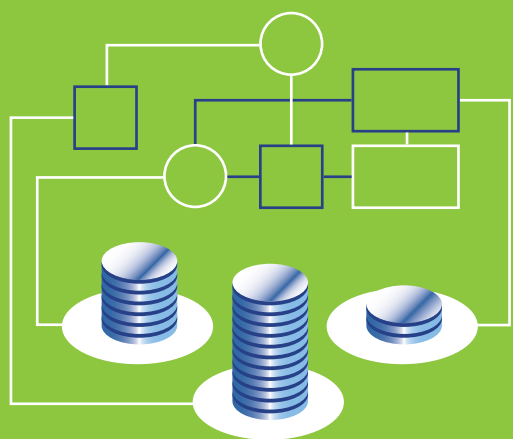


**A whole-of-government approach to transition policymaking is necessary for policies to be coordinated, credible, and efficient.**<sup>53</sup> Climate change is a cross-cutting issue that cannot be limited in scope to a few ministries or departments, such as energy and transport, or addressed in isolation from social development issues. Without a whole-of-government approach, transition policies are often limited to a few pre-selected sectors and can contradict other policies (including subsidies) in sectors without transition targets, resulting in overall transition objectives often being missed. For instance, emissions from the transport sector are increasing or plateauing in many advanced economies because transition approaches focus on electrifying passenger transport, not targeting aviation, heavy transport or maritime shipping. As a result, the energy use from transport is increasing fast, and the progress of electrification does not compensate for the increased fossil consumption by shipping and aviation.<sup>54</sup> In the majority of cases, governments already adopt a whole-of-government approach when it comes to the budget cycle and this can be extended to cover climate-alignment of government actions.

**A crucial feature of whole-of-government policies is the coherence it can bring to climate change with other policy actions and the opportunity to resolve the necessary trade-offs that emerge from decisive policy action.** All ministry policies need to be coordinated in transition action towards a common objective. Any areas excluded from scope can risk delaying or impeding overall progress. In addition, as the transition implies shifts across the economy with social consequences, a whole-of-government approach can support better management of economic changes, thereby contributing to improved public support. Brazil has committed to a whole-of-government approach in its updated NDC.<sup>55</sup>

**A centre of government (CoG) can support coordination, strengthening collaboration and climate action across government.** The CoG can be any government entity or department with the adequate mandate to take action itself and the possibility to request action from other government entities or departments. Examples consist of the Prime Minister's and/or President's offices, and other cross-government bodies. For example, France's Direction Interministerielle de la Transformation Publique (DITP) supports transition prioritisation through whole-of-government planning and annual targets.<sup>56</sup> CoGs can strengthen collaboration across government on climate change policy by using sectoral targets integrated across the whole of government, such as those in Scotland's CoG national planning framework.<sup>57</sup> However, uptake of such CoGs for climate policy is lagging, with less than half of OECD countries reporting that climate action is one of the top COG priorities.<sup>58</sup> Only 13% of OECD countries have established processes for managing divergence between priorities in different sectors.<sup>59</sup>

### 1.3. Align core financial processes with green to align all government functions with the transition

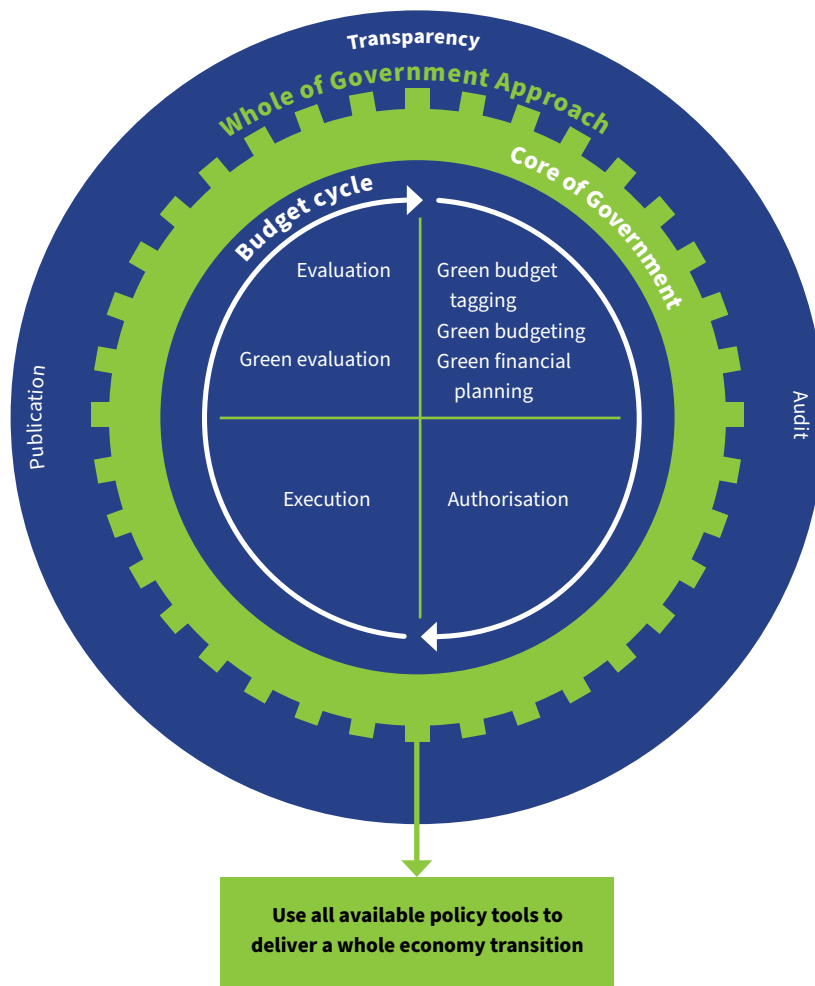


**Embedding climate commitments in long-term national planning generates confidence in the longevity of the goals and minimises potential for conflicting priorities.** National planning for a prosperous, sustainable, and stable future requires a comprehensive lens through which physical and transition climate risks and economic shocks can be mitigated and managed. As such, transition planning is an integral part of wider economic development planning.

**Governments globally are organised differently, but all governments manage budgetary resources.** Government institutional arrangements vary widely, even if some countries share similarities. There is no one size fits all government organisational chart or process for transition planning. However, all governments manage revenues and expenditure through different forms of public financial management (PFM), which runs at the core of government, and through all line ministries, in all countries. This enables integration of climate action into existing government planning, budgeting, and oversight processes.

Leveraging green PFM to support transition planning is central to effective sovereign climate action. Existing PFM processes can be adapted to integrate climate considerations, particularly at budget preparation stages (see Figure 3). However, despite being recognised as best practice by the OECD, IMF, and others, green PFM is still implemented in only a handful of countries.

Figure 3: How green public financial management processes sit within usual PFM processes throughout and beyond the budget cycle



#### 1.3.1. Cross-cutting green budgeting to ensure the transition is sustainable

**Green budgeting practices, embedding green and environmental considerations in budgetary processes, are a central element of transition planning.** As discussed earlier, climate change is cross-cutting, and cannot be effectively addressed without integrating transition into wider economic development planning, including each fiscal decision and area of expenditure. In parallel, the structure of revenue collection, i.e., fiscal policy, must be aligned to avoid misaligned incentives, for example through misaligned tax exemptions. Greening existing budgeting practices supports coordination and alignment across government activities. Such integration has already begun in some countries, usually starting with mitigation considerations and 35% of the MoFs assessed by the Coalition of Finance Ministers for Climate Action report full or partial integration of climate considerations into budget projections.<sup>60</sup>

**Green budgeting practices are emerging, mainly through the inclusion of environmental impact assessment, but more needs to be done to leverage these processes to effectively deliver the transition.**

Green budgeting practices have already been introduced in 24 OECD countries, with a range of sovereign green budgeting activities, including environmental impact assessments for public investment, which can begin to tilt investment decisions to green. However, this is often discrete and unrelated to NDCs and emissions reduction targets. Importantly for sovereign bondholders, it is also incomplete without assessment of exposure of budget items to climate-related risks.<sup>61</sup> Green budgeting can also help make traditional cost-benefit analysis, the main assessment tool for budgetary decisions, more relevant to investor concerns and ensure resilience of government investment and expenditure. Environmental cost-benefit analysis is carried out by 11 of the 24 OECD countries using green budgeting practices.

**Green budget tagging, including tagging for taxonomy alignment, is an essential process to assess the fiscal credibility of climate targets and budget alignment with climate commitments.**

Such tagging helps identify the extent to which public finances are aligned, or not, with climate targets or exposed to climate-related risks. Carried out as part of the process of sovereign green bond issuance (see section 2.2), it identifies eligible use of proceeds (UoP) for the bond, which can help streamline GSS+ issuance. Budget items can be tagged against green taxonomies, helping to streamline and standardise green definitions within policymaking, provided there is sufficient sectoral coverage from the taxonomy.

Since 2020, France has assessed the environmental impact of the state budget, identifying budgetary and tax expenditures that are favourable or unfavourable to the environmental objectives of the EU Taxonomy, but not against the Taxonomy's technical screening criteria. France was the first country to carry out green budget tagging as part of the OECD Paris Collaborative on Green Budgeting.<sup>62</sup> In the 2024 Finance Bill, 7% of the state budget was assessed as having a favourable impact on the environment.<sup>63</sup>

The European Commission's Green Budgeting Reference Framework provides a toolkit for EU Member States (MS) implementing green budgeting practices and could also provide a reference for investors to evaluate MS green budgeting.<sup>64</sup> A Commission survey reported that while green budgeting information is presented to parliaments alongside budget documents, there is a lack of clarity on whether it is discussed during budget approval debates, and therefore how green budget tagging feeds into decision-making processes.<sup>65</sup>

**Green budget tagging is most meaningful if extended consistently to all sectors and government policies, and if it includes negative climate impact.**

Certain sectors are often de facto considered climate neutral and therefore the spending is not assessed for its environmental impact, for example education, health, and local government spending, are all exempt from France's budget tagging, despite including infrastructure investment and important potential climate impacts. As a result, only 10% of the total French budget is tagged.<sup>66</sup> Comprehensiveness of budget tagging is part of the whole-of-government approach outlined earlier to avoid blind spots and contribute to policy alignment.

Green budgeting practices also need to consider negative spending, i.e., how sovereign expenditures contribute to carbon emissions and other negative environmental outcomes, both directly and indirectly. This can help with identification of contradictory and damaging policies such as fossil subsidies, and to establish a baseline for the transition of public expenditures.

Alignment of green budgeting with broader sustainable development strategies could also ensure it delivers wider government priorities. For example, Mexico's green budgeting approach is linked with its sustainable development goal (SDG) budgeting approach, with tagging covering objectives such as biodiversity.<sup>67</sup>

**Embedding green budgeting in national law can sustain practices over time.** Colombia has recently introduced green budgeting that is embedded in national budget law and plans to further develop its approach to facilitate greater accountability and transparency. However, this has not yet been widely adopted among countries practising green budgeting.

### 1.3.2. Integrate green financial planning to avoid budget shocks

**Governments need to plan for, and provide information on, the cost of transition and associated financing needs but face limitations in the extent to which direct sovereign financing of the transition can be planned in the medium and long term.** The transition is expected to increase public debt by 10-50% of GDP by 2050, depending on national circumstances and the chosen policy mix.<sup>68</sup> Planning and financing the transition is at its core a medium- to long-term planning exercise as climate targets are set several decades away, with intermediary milestones. However, most countries have annual budgeting processes.

**Taxes including change in subsidies, customs duties, and other fiscal sources are dependent on annual budget laws in most advanced economies.** Some countries have multiannual indicative fiscal frameworks such as DM economies France, Italy, and the EU Multi Annual Financial Framework; and EM economies Brazil, Colombia, Costa Rica. Costa Rica's framework, developed with IMF TA, which aims to reduce the national debt burden and improve the budget process, now informs the fiscal strategy for the whole government.<sup>69</sup> However, these frameworks usually have horizons of no more than five years and do not constitute a legal commitment from the government, unlike the annual budget. They also vary significantly in terms of coverage and enforcement.

**Financial planning will also need to incorporate anticipated changes to the fiscal balance as revenues and expenditures are altered over the course of the transition.** Sources of tax revenue may change significantly and decline without changes to tax policy. Actions to address these and associated subsidies are crucial to prevent increased government deficits as well as ensure social acceptability. Box 3 further explores these implications for fiscal balances.

In most countries, a significant share of government financing, including financing of climate action and policies, is raised on financial markets, where instruments and investor timelines may not match the long-term planning needs of the transition.

**Annual budgeting processes, with only indicative borrowing volumes laid out in multiannual fiscal frameworks, make it difficult for sovereigns to predict future borrowing rates.**

While this system enables sovereigns to secure better rates when cheaper borrowing windows appear on markets, it also makes it difficult for them to commit to large future investments, particularly when their fiscal situation is tight overall. This introduces a degree of uncertainty on the net profitability of the transition projects they finance, even if the economic profitability (i.e., return before financing cost) is positive.

**Limited sovereign capacity to plan sources of finance for the transition in turn impacts private sector capacity to plan transition investment.** Uncertainty on taxation levels, long-term visibility on fiscal support, and subsidy support to prices, impacts investment decisions, particularly for infrastructure projects where investments span over 10 years. Public-private-partnerships (PPP) and public financial institution financing schemes also suffer from this uncertainty (see also section 2.3).

Section 2 of the report examines some of the options available to sovereigns to improve planning of financial sources for the transition in order to address the challenges laid out above.

## Box 2: Challenges in costing the transition

**The cost of climate action and inaction is challenging to assess.** Globally and in the long-term, it is commonly accepted that the cost of addressing climate change is lower than the cost of not doing so. While total mitigation and adaptation investment required equals 1-2% global economic output to 2100, 3°C warming would result in 15-34% losses in global economic output.<sup>75</sup> Another study has found global losses from already baked-in climate change are six times higher than mitigation costs to limit warming to 2°C.<sup>76</sup> Box 2 notes the challenge in estimating these costs at the national level given the limitations of current models.

**Financial planning will need to account for limitations of current models in costing climate action.** Models may not capture compounding economic damage of climate change or spill-over effects, such as value chain disruptions. Physical models are also limited in their inclusion of feedback mechanisms or tipping points such as ice sheet collapse, forest die back, and coral reef extinction, therefore possibly underestimating impacts of climate change.<sup>77</sup> Recent OECD and UNDP analysis estimates an enhanced NDC scenario could increase global GDP by up to 3% by 2050, and emphasises that avoided losses could be far higher due to estimates not fully incorporating climate tipping points.<sup>78</sup>

## Box 3: Implications for fiscal balances arising from a transition away from fossil fuels

**A major challenge of the transition to a government's fiscal position is the fall in fossil fuel and carbon tax revenue and changes to fossil fuel subsidies.** Fossil fuel or carbon tax revenues can represent a significant proportion of government revenue for some countries. For example, Brazil, Russia, India, Indonesia, China, and South Africa (BRIICS) are all countries that are heavily dependent on fossil fuel revenues, accounting for 34% of general government revenue in Russia, 18% in India, and 16% in Indonesia.<sup>79</sup> Environmental taxes, of which ETS and energy taxes make up the majority of these contributions, accounted for 5% of total government tax revenue in the EU in 2022.<sup>80</sup> Transition policies that impact these tax revenues, such as phase-out, can therefore sometimes be considered as a financial risk as demonstrated by the credit rating downgrade to Ecuador following a referendum to cease oil production.<sup>81</sup>

**Conversely, phase-out of fossil fuel subsidies and tax exemptions can improve tax revenues in the near term while preventing policy contradiction and incentivising transition.** The global fiscal cost of support for fossil fuels peaked at USD1.6tn in 2022, declining to USD1.1tn in 2023.<sup>82</sup> At 1% of global GDP, this represents a large amount of lost potential revenue and a major roadblock to transition.<sup>83,84</sup> Subsidy reform has greatest potential in emerging market and developing economy (EMDE) countries where it would result in revenue gains of USD3tn in 2030, broadly equivalent to their additional spending needs to meet the SDGs.<sup>85</sup> While some subsidies are intended for social protection, for example winter fuel allowances for vulnerable groups, these may be locking such groups into continued fossil fuel dependency and could instead be repurposed to provide targeted support to enable households to transition.

**Several accounting and tax incentives such as accelerated depreciation may also have been granted to fossil-based activities such as fossil-based air, sea, and road transport.** Such accounting and fiscal policies need to be shifted to other destinations such as clean energy transportation, and this transition needs to be managed carefully to avoid losses, and promote acceptance and support for the new policies.

Re-investment for growth generation can maximise revenue. For example, they it be used to provide capital injection to the national development bank to strengthen its capacities or be invested in just transition measures such as education and training. The UK government increased the National Wealth Fund's capitalisation with oil and gas windfall tax proceeds while many resource-rich nations have used fossil fuel revenues to capitalise large sovereign wealth funds (see section 2.3).<sup>86</sup>

## 1.4. Use all available policies to deliver whole economy transition



### 1.4.1. Align the policy mix alongside green PFM practices for fiscal efficiency

**Alongside green PFM processes of taxation and expenditure alignment, there is a wide range of policies available to sovereigns to align the economy with climate targets.**

*Climate Bonds' 101 sustainable finance policies for 1.5°C* provides an overview of the range of policies available to deliver transition, across government departments and other policymakers.<sup>70</sup> Policies to deliver transition fall into seven main categories, summarised in Table 2. Section 2 of this paper focuses on financing the transition and therefore explores financial policy (see 2.1, 2.2), de-risking instruments (see 2.3), and monetary policy (see 2.4) in more detail.

**The whole-of-government approach at the heart of green PFM fosters this use of broad range of policies across government departments.** This can reveal fiscally efficient policy options to encourage decarbonisation, for example, preferential planning laws for zero-carbon buildings, or incorporating resilience requirements into all infrastructure standards.

### 1.4.2. Provide clarity to the market via transition policy roadmaps

**Policy roadmaps with a clear underlying sequence provide long-term clarity to stakeholders on enforcement timelines, clarity over longevity of government support for certain activities and technologies, and enable measurement of progress.** Roadmaps can be coordinated by CoGs to enable coherent implementation and reduce the potential for delay. See Box 4 for further guidance on sequencing. Quantification of impacts can demonstrate how the strategy will add up to the targets set and to enable monitoring of implementation progress over time. For each policy, the roadmap can outline the target population, responsible policymaker, estimated impact, and interactions with other national objectives/priorities.

**Roadmaps can be highly complex and incorporate both the financial and real economy policies envisaged for transition. However, they can also have a narrower focus.**

EM government sustainable finance roadmaps, for example, are often developed with MDB or foreign government support, such as the Philippines Roadmap.<sup>71</sup> The Inevitable Policy Response's Required Policies Scenario can be used to evaluate ambition of policy roadmaps for those countries and policies covered in the scenario.<sup>72</sup>

**Inclusion of policies that address climate resilience and other environmental objectives in the roadmap can ensure efficiencies and prevent development of policies that may do harm to a particular objective.**

An example is the development of low-carbon transport infrastructure, which may address mitigation objectives but not necessarily adaptation (e.g., without adequate design, it could remain highly vulnerable to climate events, not addressing resilience issues). Integration of just transition considerations into both individual policies and the overall policy roadmap can indicate greater likelihood of a smooth transition, minimising risks of political and public opposition to transition which may delay or derail action. Assessment tools like the ASCOR framework are beginning to include adaptation and just transition indicators; although, as a separate policy category, rather than integrated across indicators.



Table 2: Seven categories of transition policies for effective sovereign transition plans, and example policies.

| Select transition policies   | Target                   |   |                           |
|--|--------------------------|---|---------------------------|
|  | Greening public spending | Enabling non-financial corporate sector | Enabling financial sector |
| <b>Market-based real economy policy</b>  |                          |   |                           |
| Tax incentives and disincentives, both at asset level and financial instrument level |                          | ✓                                       | ✓                         |
| Subsidy reform, including harmful subsidy phase-out                                  |                          | ✓                                       | ✓                         |
| Carbon pricing   |                          | ✓                                       |                           |
| CBAM and green trade windows   |                          | ✓                                       |                           |
| CCFDs, feed in tariffs   |                          | ✓                                       |                           |
| Standards and transition roadmaps (taxonomy)   | ✓                        | ✓                                       | ✓                         |
| <b>Non-market-based real economy sectoral policy</b>                                 |                          |   |                           |
| Bans and phase-out dates   |                          | ✓                                       |                           |
| Land use planning  |                          |   |                           |
| Planning laws  |                          | ✓                                       |                           |
| Priority infrastructure strategy   |                          | ✓                                       |                           |
| <b>Financial policy</b>  |                          |   |                           |
| Green public financial management  | ✓                        |   |                           |
| Green public procurement   | ✓                        | ✓                                       |                           |
| Green budgeting  | ✓                        |   |                           |
| GSS+ issuance  | ✓                        |   |                           |
| <b>De-risking instruments</b>  |                          |   |                           |
| Guarantees   |                          | ✓                                       | ✓                         |
| Grants   |                          | ✓                                       | ✓                         |
| Dedicated green public development bank  | ✓                        | ✓                                       | ✓                         |
| <b>Financial and prudential regulation</b>   |                          |   |                           |
| Disclosure requirements  |                          | ✓                                       | ✓                         |
| GSS+ bond guidelines   |                          | ✓                                       | ✓                         |
| Regulatory KPIs  |                          |   | ✓                         |
| Standards and taxonomy   |                          |   | ✓                         |
| <b>Monetary policy (Central Bank)</b>  |                          |   |                           |
| Collateral frameworks  |                          |   | ✓                         |
| Green asset purchase   |                          |   | ✓                         |
| Green credit guidance  |                          |   | ✓                         |
| <b>International policy</b>  |                          |   |                           |
| International cooperation: Article 6 participation <sup>88</sup>                     | ✓                        |   |                           |
| International public finance: green export credits, contribution to NCQG             | ✓                        | ✓                                       | ✓                         |

### 1.4.3. Establish or adopt a robust internationally interoperable taxonomy to act as a lynchpin to transition policy design and implementation

**Taxonomies can be the cornerstone of a robust transition.**

**A strong, internationally interoperable, national taxonomy is an important indicator of the robustness of green PFM procedures, investment planning, and policy prioritisation.**

As noted above, taxonomy criteria can be used to guide sectoral targets and consistent green budget tagging and investment priorities, translating NDC targets into real economy action. The process of project selection can be robustly structured, based on contribution to climate and sustainability targets. However, this does depend on the extent of taxonomy coverage. **Use of an internationally interoperable taxonomy to determine project eligibility for labelled sovereign issuance can help ensure investor appetite, and align bond issuance with broader green PFM processes.** Ireland's Climate Action Plan 2025 includes expansion of green budgeting to incorporate all six objectives of the EU Taxonomy. This is part of wider efforts to align economic tools and public finance with climate goals.<sup>73</sup>

**A transparent, standardised taxonomy can provide**

**clarity to the market and consistency between public and private decision makers on how market participants can help to meet transition targets.**

The taxonomy can also expand available decarbonisation and adaptation options, for example Rwanda's NDC covers eight sustainable agriculture practices, while its taxonomy covers over 60 practices.<sup>74</sup> Wider use for other policies such as subsidy provision or corporate reporting requirements can improve confidence in overall transition plan alignment, encourage private sector uptake, and ensure private sector investment opportunities meet international investor expectations.

**Use of an internationally interoperable taxonomy to determine project eligibility for labelled sovereign issuance can help ensure investor appetite, and align bond issuance with broader green PFM processes.**

#### Box 4: The importance of sequencing policy action within the transition strategy

Strong and robust sequencing of policy action will be driven by assessment of action on several dimensions.

**Impact and feasibility.** The policies with the highest impact on achieving government targets and/or those that are the easiest to implement (in terms of costs, social buy-in, lead time, etc.) and can be assessed with cost-benefit analysis that includes the full financing cost of projects and actions over time. Policies and actions with the highest impact and feasibility can be prioritised for earlier implementation, considering priority economic sectors in line with wider development strategies, hence the importance of aligning the transition plan with development priorities.

**Dependencies.** Some actions and policies will require other actions to be taken before they can be fully implemented. For example, encouraging the use of EVs also requires assessing whether the electricity grid can provide sufficient charging points and the roll out of charging infrastructure, with financial institutions own transition disclosures depending on the information provided by their borrowers. Assessment of those dependencies can inform the order of policy and actions over time.



## 1.5. Prioritise transparency efforts to build investor support



### 1.5.1. Ownership

**Clear overall senior government ownership for oversight and implementation of the transition indicates that it is high priority and generates confidence in implementation.** Overall responsibility will sit at the head of government, as with NDCs, but oversight will be designated to a specific department, likely the MoF. Governance structures will need to be in place prior to designing and implementing the transition plan. Establishing this governance is the first step in the NDC Partnership/GCF framework.<sup>89</sup> For example, Japan's GX plan originated from the Ministry of Economy, Trade and Industry but the Cabinet Secretariat GX Office involves the Financial Services Agency and Ministries of Foreign Affairs; Finance; Health, Labour and Welfare; Agriculture, Forestry and Fisheries; Economy; Trade and Industry; Land, Infrastructure, Transport and Tourism; and the Environment, with a high level GX Implementation Council chaired by the Prime Minister.<sup>90,91</sup>

**Input and review from an independent body can help generate investor confidence in the transition plan's governance structures.** Placing monitoring responsibilities with an independent body can help to provide an objective and reliable assessment; although, government agencies will need to input relevant information. Good practice examples are seen in the UK and France where independent climate commissions, the Climate Change Committee in the UK, and the High Council on Climate in France, provide advice on priority action to meet national carbon budgets.<sup>92,93</sup>

### 1.5.2. Monitoring and reporting within existing processes

**Integrating transition planning reporting into existing reporting and controls will streamline processes and ensure credibility.** Most policymaking and budgetary decisions are subject to a complex process of internal reporting and controls. There is no need to develop new processes, but instead integration of relevant climate and sustainability metrics into existing processes. This will be highly country-specific, subject to each country's legal framework and institutional make-up.

**All government departments will need to report on climate impact and progress.** Each nation will need to decide where this information is consolidated but it will likely sit with the CoG or MoF.

**Government supreme audit institutions can provide ex-post auditing on green PFM results.** Government auditor mandates can be extended to include climate, both in terms of quality assuring green budget reports and conducting climate performance audits. For example, Bangladesh's Office of the Comptroller and Auditor General carried out pilot climate performance audits in 2018 with support from UNDP.<sup>94</sup>

**Internal monitoring and reporting will need to feed into external transparency efforts.** Transparency is key to credible green PFM. Publication of Citizens' Climate Budgets has been suggested as a way to explain climate expenditure and performance information.<sup>95</sup> France's supreme audit institution, the Cour des Comptes, provides an annual assessment of progress against the Climate and Resilience Law.<sup>96</sup>

## 2. How sovereigns can finance the transition

**Sovereign financing strategies will need to address both public and private financing of the transition.** Sustainable development and climate investment needs far exceed public financing capacity in both developed and EMDEs other than China are estimated to need USD1tn of external finance per year by 2030, to meet mitigation and resilience objectives.<sup>97</sup> Of this, 80% will need to be covered by the private sector due to limited public investment availability.<sup>98</sup>

### 2.1. Explore alternative solutions for transition spending under fiscal constraint

**DM and EM sovereigns lack finance to fund their transition despite increased use of labelled sovereign debt issuance.**

Many developing countries continue to face challenges in delivering their current NDCs, particularly mobilising and accessing finance from different sources to meet their climate commitments.<sup>99</sup> Advanced economies also face significant financing gaps, with a public investment gap estimated at EUR900bn in the EU from 2025-2031, for example, the majority of which is for the transition.<sup>100</sup>



A debt overhang occurs when the amount of existing debt is so large that it prevents or threatens access to capital markets for further borrowing. The IMF Fiscal Monitor reported in April 2025 that “global public debt projections have been revised upwards, while tariffs, uncertainty and market volatility, increased defence spending, and challenging foreign aid are intensifying risks. Countries must implement gradual fiscal adjustments within credible medium-term frameworks to reduce debt and build buffers against heightened uncertainty.”<sup>101</sup>

**For developing economies, debt overhangs are limiting vital investments, including transition investments.** Over 60% of low-income countries and 25% of middle-income economies are in or at risk of debt distress.<sup>102</sup> Developing economy debt crises severely threaten the green transition, as debt servicing (i.e., interest payments and capital repayments) dwarfs new cash flows, while the interest charge weighs on the expense budget. A 2024 study of 20 low- and lower-middle-income (LMIC) countries accounting for USD1.7tn of GDP and USD600bn in external public debt, estimated debt service payments to be as high as USD70bn per year to 2028. The prospect of years of negative net debt transfers harms growth prospects and LMIC ability to transition, and could lead to insolvency, further delaying the green transition.<sup>103</sup>

**Debt to GDP ratios in advanced economies have risen sharply following the COVID-19 pandemic, from levels that had already not fully recovered from the 2008 global financial crisis.** Debt-to-GDP ratios are now at 81.5% in the EU, 123% in the USA, and 214% in Japan.<sup>104,105,106</sup> While these debt levels are not necessarily categorised as debt overhang, high debt levels tend to constrain the capacity of sovereigns to borrow to finance the transition. Indeed, to reduce their debt, countries are generally advised to spend less.<sup>107</sup> This goes against the massive investment spending required by the transition, particularly as sovereigns will face limitations in raising taxes to fund state budgets due to political-economy limitations (see 1.2.), coupled with existing high tax levels in many advanced economies and economic concerns over lack of internal demand to sustain domestic investment.

#### 2.1.1. Investigate carving out sovereign transition spending from fiscal deficit limits

**Carving out sovereign transition spending from deficit calculations is one policy avenue that has been explored to free up sovereign capital and resolve the debt overhang issue for transition investments.** The COP 27 Independent High-Level Expert Group on Climate Finance made such a recommendation in 2023: ‘Adapt fiscal rules, with countries considering options that preserve fiscal sustainability while creating room for sound investments, through:… Carving out selected high-priority, high-return investments for climate-related spending into a separate category, exempt from fiscal rules.’<sup>108</sup> Carve outs for defence spending set a precedent for transition carve outs, the EU has allowed MS to use a fiscal ‘national escape clause for defence expenditure’ but does not allow the use of this clause for transition spending.<sup>109</sup>

## 2.1.2. Article 6 trades could provide a potential source of finance for EM sovereigns

**Article 6 carbon credit trades could provide a source of green capital for emerging markets.** Article 6.2 of the Paris Agreement allows a country that is on track to exceed its NDC target, to trade Internationally Transferred Mitigation Outcomes (ITMOs) with a buyer country in return for financial support, support for capacity building, and access to technologies not available through domestic resources. The buyer country uses these ITMOs to address gaps in meeting its NDCs. This process is controlled by the Article 6 rulebook agreed at COP26 in 2021 to avoid double-counting and establish an 'overall mitigation of global emissions tax', discounting the volume of credit going to the buyer by 2% to ensure net additional reduction in emissions.

**How the sovereign uses Article 6 funds could provide an indication to investors of their impact on sustainable growth prospects.** For example, Suriname has indicated that it intends to use Article 6 funds to address debt burdens, capitalise a sovereign wealth fund, and invest in sustainable infrastructure development. Article 6 co-operations could also help establish dialogues and potential wider trading opportunities between countries, thus providing an indication of a country's economic diversification.

With the market in its infancy, sovereigns need to be cautious of reliance on these trades in near-term financial planning. As of September 2025, currently only one Article 6.2 bilateral cooperation has been negotiated, out of 99 signed co-operations and statements of intent.<sup>110</sup> The overall carbon credit market (USD1.4bn) is dwarfed by green capital markets.<sup>111</sup> Article 6 trades could constitute half of global carbon credit demand by 2035.<sup>112</sup>

## 2.2. Utilise GSS+ bond markets to fund transition

Even in a narrowing fiscal space, green, social, sustainable and sustainability-linked (GSS+) bond markets offer opportunities for sovereigns to fund their transition, which also provide a signalling effect to encourage private entities to issue.



Long-dated debt can help shield government finances against interest rate changes. Faced with higher rates and increased policy and market uncertainty, sovereign issuers have pursued a variety of strategies that lead to differing maturity profiles and debt affordability metrics, with those opting for short-dated debt issues being relatively more exposed to sudden or large increases in interest rates.<sup>113</sup>

Green UoP bonds account for 80% of 2024 labelled sovereign issues but the adoption of new products such as sustainability-linked bonds (SLBs) is growing globally with the most recent example of Thailand which issued a USD1.3bn SLB in H1 2025.

### 2.2.1. GSS+ labelled debt has developed as a successful capital markets segment to finance the transition

**Sovereigns are increasingly using GSS+ capital markets to finance their transition, with Climate Bonds recording deals from 70 sovereigns with a combined volume of USD733.1bn as of the end of H1 2025.** In terms of volumes, the lead labelled sovereign issuer is Germany followed by France. However, labelled debt accounted for only 1% of the USD18.5tn global sovereign issuance recorded in 2024 – an indication that only a small part of sovereign debt-financed spending is dedicated to transition need.<sup>114</sup>

**Increasing proportions of labelled debt can demonstrate sovereign commitment to transition.** A global green budgeting approach by governments across the board could unlock new transition investment and therefore labelled UoP issuance. As green PFM processes increasingly align sovereign expenditures with climate targets or taxonomy criteria, increased sovereign expenditure can be funded by labelled UoP issuance. Proportions of labelled debt currently vary significantly between countries: from 0.1% of sovereign debt outstanding in Japan to 42.1% in Chile.<sup>115</sup> Japan issued its Green Transformation (GX) bond in 2024 to fund the sovereign transition plan, the GX plan.<sup>116</sup> The huge size of Japan's sovereign debt (USD10.7 trillion) explains why Japan still has a minor proportion of labelled debt compared to its total.

**GSS+ issuance can provide pricing benefits to sovereigns as they often attract higher investor demand than vanilla equivalents.** EM issuers in particular can attract a more diverse range of investors through GSS+ debt issuance, as well as higher overseas interest. Overall, GSS+ bonds tend to exhibit higher book cover and larger spread tightening in the primary market compared to vanilla equivalents. Several sovereign green bonds have secured a greenium; a new-issue concession where the bond is issued with a higher price, and thus has a lower yield compared to outstanding debt, pricing inside its own yield curve.<sup>117</sup> Green bonds also often perform more strongly on the secondary market, particularly during periods of volatility, therefore conferring liquidity benefits to their investors.<sup>118</sup>

**Expanding sovereign GSS+ issuance to fund the transition will also help stimulate the local GSS+ capital market.** This is a major motivation for debut sovereign issuers, and provides benchmark pricing for the market.

### 2.2.2. SLBs are specifically tailored to anchor transition targets in long-term government policies

**SLB issuance provides a way for sovereigns to demonstrate their commitment to transition, particularly where they may not be able to identify sufficient green expenditure for UoP issuance.** SLB issuance can also significantly increase proportions of labelled debt. Theoretically, all sovereign debt could be sustainability-linked to overall climate targets because SLBs finance general expenditure. Sovereign SLBs have now been issued on three continents. For example, Slovenia's recent SLB framework and KPIs are strongly aligned with its NECP and the Slovenian Development Strategy 2030. Box 5 provides two SLB examples.

## Box 5: Sustainability-linked bonds as a method for creditors to hold states accountable to their commitments

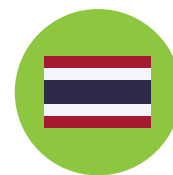
**The Government of Chile** issued the first sovereign SLB in March 2022, which demonstrates commitment to a sovereign transition plan, encourages higher credibility SLB issuance, and aligns with the Climate Bonds SLB Database methodology.<sup>119</sup> The framework sets three sustainability targets:



- Limit emissions to 95 MtCO<sub>2</sub>eq/yr by 2030.
- Achieve 50% renewable electricity generation by 2028 and 60% by 2032.
- Achieve 40% representation by women on the board of directors in companies under the scope of Chile's Financial Market Commission by 2031.

Chile has set a precedent for other sovereigns looking to issue SLBs as governments increasingly look for means to finance their commitments to decarbonise their economies. However, while Chile's GHG emission targets are in line with their NDCs, they are not aligned with 1.5°C. Chile and other potential sovereign SLB issuers need to strive further in their ambition to align with 1.5°C.

In 2024, **Thailand** issued its first SLB raising THB30bn (USD865m), which is linked to two sustainability performance targets (SPTs) which include a reduction of 30% in GHG emissions by 2030 and an increase in new registrations of zero-emission vehicles to 440,000 per year by 2030. While these are material and ambitious SPTs, given Thailand is an EM growing its economy through industrial production, aligned with Thailand's unconditional NDC commitments, these targets are not aligned with 1.5°C.<sup>120</sup> This deal encourages accountability from Thailand, but larger coupon adjustments would enhance its credibility as an incentive for change.



The achievement of the SPTs is supported by policy action, such as Thailand's 2024 power development plan for use until 2037. It forms part of the national energy plan and states the intention to increase the share of energy from renewable sources to 51% by 2037 from 20% in 2023. The Thailand Board of Investment has introduced several measures including pricing policies, tax breaks, and non-tax incentives to raise EV use to 30% by 2030.<sup>121</sup>

## 2.3. Leverage public financial institutions to provide long-term investment and mobilise private capital for transition

Capital mobilisation is essential to meet the climate investment gap, and existing public investment sources can be used to crowd in private investment, therefore increasing the capital available for transition.



### 2.3.1. National development banks can crowd in private investment

National development banks (NDBs) are well placed to finance the transition, potentially able to address market failures to provide long-term capital for investments aligned with transition priorities. NDBs are common across the world, although they are more prevalent in high and upper-middle-income countries. Within the limits of government capitalisation, NDBs can take action to increase the level of finance available for transition.

**Aligning with national climate targets and tilting lending and financing operations to green can ensure NDB investments deliver transition.** Some NDBs may require mandate expansion or clarification to increase climate action. The national green taxonomy or other international standards can be used to align investments, although breadth of taxonomy is important to ensure the NDB still meets its social development mandate. If social expenditures are not included in the taxonomy, then a 'do no significant harm' or exclusions approach can be applied to these expenditures to ensure they do not hinder the transition.

**As is the case for sovereigns, GSS+ bond issuance can enable NDBs to access long-term private capital for green and sustainable expenditure.** High demand for labelled debt also means GSS+ bonds usually obtain larger oversubscription compared to vanilla equivalents. This could enable the NDB to obtain tighter pricing, or a greenium, compared to vanilla deals.<sup>122</sup> However, not all NDBs are allowed to issue under their mandates or statutes, and in cases where the NDB has a lower credit rating than the sovereign, it may be an inefficient way of raising capital for public expenditure.

**NDBs can look to increase private capital mobilisation, applying lessons learned from bilateral and multilateral development finance institutions (DFIs).**<sup>123</sup> Sophisticated mobilisation targets can maximise climate impacts and encourage breadth of use of instruments based on needs. These require a clear definition of mobilisation that encompasses all capital mobilisation tools available to NDBs to ensure all possible approaches are considered in investment decisions. Key mobilisation tools available to NDBs include early-stage project preparation, on-selling investments, and guarantee provision.

**Alignment of international and bilateral DFIs is key to global transition, particularly given their role in financing EM transition, but is not explored in depth here as focus is on sovereign action for own transition.** However, EM governments will need to engage with DFIs to ensure maximum access to resources, and DFI shareholders (i.e., DM governments) will need to tilt action of their DFIs to align with global climate goals. The Climate Bonds report *The Role of DFIs in Accelerating the Mobilisation of Green Capital* provides more details.<sup>124</sup>

### 2.3.2. Sovereign wealth funds can target transition investment

Sovereign wealth funds (SWFs) were typically created at times of budgetary surplus, often funded by commodity export revenue, and facilitate intergenerational transfer of wealth. They invest long term in domestic and international assets, primarily to generate a commercial return, and therefore operate differently to NDBs, with a higher cost of capital for projects financed. Globally, SWFs manage USD12.4tn in assets.<sup>125</sup>

Government asset holdings in SWFs can be tilted to green to increase financing available for the transition and to also improve the resilience of these funds to climate-related risks. **Introducing net-zero targets for their SWFs is a clear opportunity for governments to help fund their net-zero transition.**<sup>126</sup>

At present, only a third of members of the International Forum of Sovereign Wealth Funds have a net-zero goal and a third have no plans to introduce one.<sup>127</sup> However, there are examples of good practice globally. In 2022, New Zealand's sovereign wealth fund shifted 40% of its holdings to Paris-aligned indices, committing to a 7% annual CO<sub>2</sub>e reduction.<sup>128</sup> Norway's sovereign wealth fund, which owns 1.5% of the world's listed assets, introduced an environmental mandate programme investing in green bonds, but has since removed it, instead committing to reduce the climate risk of the entire fund.<sup>129</sup>

**SWFs can also be leveraged for strategic long-term investment in the net-zero transition.** Such funds could be partially dedicated to or fully transformed into environmental trust funds, dedicated to providing long-term investment in net zero-aligned projects. SWFs therefore can use historic fossil fuel incomes to facilitate the transition to net zero. Governments can also establish new funds to encourage action. In 2005, Korea's MoF established the Korea Fund of Funds. This provides seed funding to local fund managers to boost SME and venture capital investments.<sup>130</sup>

**As SWF mandates come into stronger alignment with NDB mandates, it will be important to ensure clarity and distinction of investment priorities.** Clarity on investment appetites and approaches can also help project developers understand where to apply for funding, preventing duplication of efforts and maximising investment potential. The UK government established the National Wealth Fund in 2024, converting the UK Infrastructure Bank and expanding the mandate to align with the broader industrial strategy. The UK NDB, British Business Bank, is focused on SME financing and so has a different focus from the SWF.

## 2.4. Assess the supportive roles of central banks and financial regulators in financing the transition

Additional work on the assessment of climate-related financial risks is urgently needed to demonstrate financial materiality of those risks and justify the use of prudential or financial stability tools. The vast majority, if not all, of labelled and unlabelled sovereign debt in the Eurozone as of today does not show any climate-related financial risks. Credit rating agencies score the ESG risk as not financially material for the large sovereign euro-area borrowers. Macro- and micro-prudential tools however are designed to address and manage risk, rather than facilitating investment.



Monetary policy tools on the other hand can support and encourage investment in the transition, and while some central banks around the world already use them to do so, those practices are nascent and can be constrained by legal mandates in several jurisdictions. For example, while being active on climate in prudential supervision, the European Central Bank (ECB) is framing climate action on monetary policy within the limitations of its primary objective of price stability. Excepting monetary financing examples set out below, there are no examples of large central banks greening their sovereign debt monetary policies. Finally, central banks can also green the implementation of their monetary operations, to reflect climate-related financial risk, contribute to financial stability, as well as support a tilting of the playing field to green across the board.

### 2.4.1. Encourage green lending via green asset purchase

**Adjusting central bank asset purchase away from the market neutrality principle and towards climate neutrality can help ensure financial stability and resilience to climate-related risks.** Asset purchase has historically been carried out in accordance with market neutrality, replicating market distribution to avoid market distortion. However, central banks are increasingly recognising that ‘market neutral’ approaches under-price climate risk and can overly favour high-carbon assets due to their dominance of financial markets. Acknowledging a breakdown in market efficiency, several central banks are introducing measures to align asset purchases in a way that recognises the systematic underpricing of climate risks.<sup>131,132</sup>

**During periods of monetary expansion, the central bank can tilt asset purchases to green.** The ECB tilted corporate bond purchases under the now discontinued asset purchase programme (APP) and pandemic emergency purchase programme (PEPP) using an issuer-specific climate score, based on past emissions, ambition of climate targets, and disclosure quality.<sup>133</sup> While this resulted in a decrease in carbon intensity of corporate security holdings, it did not necessarily increase availability of transition financing.<sup>134</sup> The central bank can still green its portfolios during monetary tightening. For example, the ECB tilted purchases to better climate performers more strongly during partial reinvestment.<sup>135</sup>

**Foreign exchange reserves can also be adjusted to take climate risk into account.** For example, Sweden’s Riksbank applied climate risk weightings to a portion of its SEK500bn foreign exchange reserves and excluded bonds from the highly fossil fuel-dependent provinces of Alberta, Canada; and Western Australia and Queensland, Australia.<sup>136</sup> Hungary’s MNB created a dedicated green bond portfolio within its foreign exchange reserves in 2019.<sup>137</sup> However, such adjustments need to be made carefully in order to avoid restricting the ability of highly polluting states to decarbonise. With growing concern over the impact of transition risk on cost of capital for emerging markets, such policies could include sensitivity to transition plans.

### 2.4.2. Adjust collateral frameworks

**Collateral frameworks can be adjusted to account for the climate risk of an asset.** The collateral framework has a significant impact on the price and allocation of capital. It determines what assets a financial institution can pledge to receive a loan from the central bank. Several central banks have widened the framework, for example the ECB includes SLBs. The PBOC includes AA-rated green bonds and credit, citing the lower non-performing loan ratio of green loans.<sup>138</sup>

**Incorporating climate risk into haircut calculations could allow better resilience to future systemic risk.** A haircut (reduction in value) is applied to pledged collateral based on its riskiness, traditionally calculated based on historical data. Calculation of green supporting or brown penalising factors may require evidence from climate stress tests. The NGFS suggests the most impactful haircut adjustment to be one that uses a sliding scale combining positive and negative screening, and that this would prevent constraints to liquidity by ensuring post-haircut collateral volume remains constant.<sup>139</sup>

In 2025, the ECB announced a ‘climate factor’ collateral framework to address climate-related transition risks from the second half of 2026. The climate factor will be used to adjust the value assigned to assets pledged as collateral and may reduce the maximum amount that can be lent against them. The degree of adjustment will depend on the potential impact of transition-related shocks on an asset.<sup>140</sup> However, there is a risk that while the climate factor could protect the Eurosystem against financial risks from the transition, it may hinder transition finance because it may reduce the appetite of banks for corporate bonds in some areas of the transition.

The Philippines central bank, the Bangko Sentral ng Pilipinas (BSP), adjusted its credit exposure limits to offer an additional 15% single borrower limit for sustainable projects. Eligibility was defined by adherence to the Philippines Strategic Investment Priority Plan, Philippines Sustainable Finance Framework, Philippine Sustainable Finance Guiding Principles, ASEAN Taxonomy, or Philippine Sustainable Finance Taxonomy Guidelines. It also reduced the reserve requirement rate for new and outstanding sustainable bonds issued by banks to 0%.<sup>141</sup> BSP stated that the aim of those measures was to finance activities falling under the national government's climate commitments and national development goals. The measures do include various prudential safeguards.

### 2.4.3. Climate-tilt credit operations

**Central banks can adjust credit operations to reflect climate risk and opportunities.** This can be done by adjusting the interest rate of lending facilities to reflect counterparty climate-related lending, or according to carbon-intensity pledged collateral. For example, the Bank of Japan offers a zero-interest rate to financial institutions that finance climate mitigation projects in Japan, exempting these loans from negative interest rates paid on central bank deposits. The announced programme replaces an earlier, growth-oriented lending facility, which provided 0.1% subsidy to banks that financed projects deemed to contribute to economic growth.<sup>142</sup>

**Availability of lending can also be made conditional on climate-related disclosure or the proportion of green investments.** For example, during the COVID-19 pandemic, Canada introduced a Large Employer Emergency Financing Facility, access to which required TCFD disclosure among other constraints.<sup>143</sup> However, uptake was limited (a total of seven loans approved) since finance was also available to firms through the Bank of Canada's asset purchasing programme on less onerous terms.<sup>144</sup> This demonstrates the need for consistency across financing facilities provided by the central bank and government.

### 2.4.4. Direct lending to priority transition sectors

**Priority sector lending or credit guidance mandates financial institutions to provide a certain proportion of credit or discounted credit to certain sectors.** It could be used to channel lending to key transition activities. The Reserve Bank of India added renewable energy as a priority sector in 2015, complementing policy reforms, jointly causing the renewable energy proportion of energy sector bank credit to grow from 5.4% to 7.9% by 2020. Bangladesh Bank requires financial institutions to allocate 2% of all loans to green projects and for 15% of all loans to meet a wider definition of supporting sustainable activities.<sup>145</sup>

These mandatory credit quotas have the potential to create market distortions and should be carefully evaluated against other less distortive incentive measures such as preferential treatment of green lending. **Rather than setting a hard quota, central banks could offer preferred interest rates for priority sectors;** setting interest rates to promote sustainable and curb unsustainable lending, however this is still a highly interventionist policy.<sup>146</sup>

**Green targeted refinancing lines** offering preferential refinancing for specific green assets enable financial institutions to lend at lower interest rates to sustainable projects. This is most relevant in economies with relatively underdeveloped secondary security markets as they lack market-based refinancing options.<sup>147</sup>

### 2.4.5. Monetary financing could provide a solution for sovereigns to access low-cost capital to finance the transition

In a debt overhang context, a number of policy options could be available to governments to widen the fiscal space available for transition issuance and transition finance. How practicable such options are depends on the institutional and political context in each country. Globally, state access to monetary finance is very restricted because generally central banks in advanced economies are independent from the state and have sole control of monetary policy. In the Eurozone, monetary financing is expressly forbidden by the Maastricht Treaty, which means a MS cannot access the "printing press" to repay debt.

**As a result, advanced economies rely on taxes and capital markets borrowing to finance the transition.** The merits of central bank independence and the optimisation of the link between fiscal and monetary policy are beyond the scope of this report, but the case has been made for more monetary financing in advanced economies. Lord Adair Turner advocated this while noting the strong legal and ideological limitations resulting in this route not being practical, particularly in the EU, in his 2016 book *Between Debt and the Devil: Money, Credit, and Fixing Global Finance*.

However, monetary financing has been carried out in EMDEs, with China using monetary finance to fund significant investment by the state, including transition investment, particularly for infrastructure. This source of finance is cheap and stable over the long term. France and Japan during the post WW2 reconstruction period also used monetary finance to fund massive infrastructure reconstruction spending, on a scale similar to that needed to meet climate goals, with democratic political regimes, and private banking sectors.<sup>148</sup> However, other examples of EMDE monetary financing have led to hyperinflation, most famously in Zimbabwe in 2008.<sup>149</sup>

# Looking ahead

Many of the sovereign transition planning processes recommended in this paper are not widely used by governments across the world, but they are an adaptation of existing processes familiar to many policymakers and investors. This familiarity should help to embed and safeguard climate action in government, and improve uptake and evaluation. The adaptations should ensure robust and credible transition planning to help unlock both public and private financing capabilities for the transition.

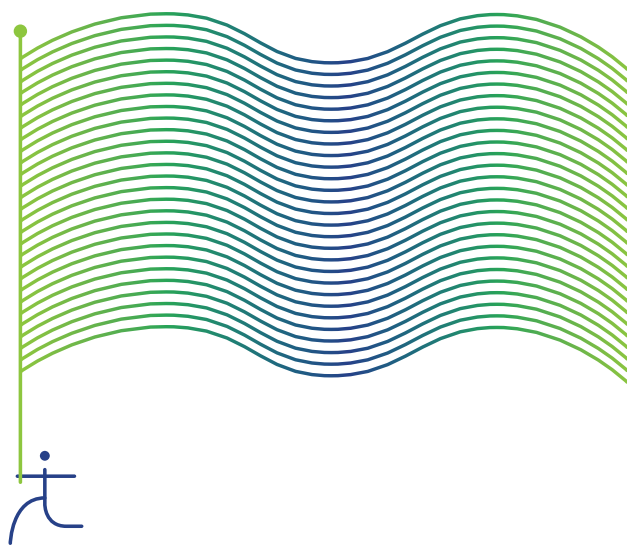


This report also aims to expand the conversation on, and provide solutions to, financing of sovereign transitions that fit current fiscal constraints of many governments.

It is intended to equip investors and sovereigns with a framework and set of recommendations to discuss in local contexts to advance shared goals of sustainable long-term, low-carbon growth.

Climate Bonds continues to support investors in navigating sovereign transitions, and to support sovereigns in transitioning their economies, including through green taxonomy development, implementation of taxonomies in policy frameworks, and GSS+ sovereign bond issuance.

Climate Bonds actively collaborates with other stakeholders working on these agendas: framework providers, assessors, and investor coalitions etc., to unify understanding and support investors and sovereigns going forward. Please get in touch at [policy@climatebonds.net](mailto:policy@climatebonds.net) if you would like to continue this conversation.



# Appendices

## Appendix 1: How sovereign transition plan processes map to the Climate Bonds *Hallmarks for a Credible Transition*.<sup>150</sup>

**Hallmark 1. Paris-aligned targets** can be closely mapped to sovereign transition. Most targets will be presented in NDCs, but robust transition planning will likely go beyond usual NDC timelines and scope.

**Hallmark 2. Robust plans** is much more complex at the sovereign level due to the multiplicity of economic activities in scope. For investors, assessment of two key approaches can best enable assessment of robustness: *green budgeting and whole-of-government approach*.

**Hallmark 3. Implementation action** is challenging to assess at the sovereign level, with significant interaction with Hallmark 2 due to the sovereign's lack of direct control over much of the transition. The most relevant aspect of implementation to assess will be the sovereign's *Financial planning* of the transition and *Use of all policy tools*.

**Hallmark 4. Internal monitoring** is a crucial element of how governments function, however due to the country-specific nature of monitoring mechanisms, and the fact that such mechanisms will not be specific to the transition, these are not addressed in detail in this report but will feed into government *Transparency*.

**Hallmark 5. External reporting** does not apply as such to sovereigns. *Transparency* is crucial to enabling assessment of sovereign transition planning and will be seen across multiple areas of transition planning, from publication of NDCs to sovereign GSS+ bond reporting.

## Appendix 2: Frameworks reviewed

Table 3: Existing guidance and assessment tools for sovereign transition plans

| Type  | Organisation   | Framework reviewed   | Short name in report   | Primary purpose of the framework  |
|---|--|--|--|---|
| Assessment frameworks                                   | Transition Pathway Initiative (TPI) Centre at LSE                      | Assessing Sovereign Climate-related Opportunities and Risks (ASCOR) framework: methodology note, 2024 <sup>151</sup>   | ASCOR framework  | Investor-led tool to assess countries on climate action. Methodology is used for publicly available country-level assessments.  |
|   | OECD International Programme for Action on Climate (IPAC)              | Climate Action Dashboard <sup>152</sup>  | OECD IPAC dashboard  | Key indicators to track global and OECD country progress towards climate objectives.  |
| Guidance for  | UNFCCC   | Information to facilitate clarity, transparency and understanding of nationally determined contributions (ICTU), 2019 <sup>153</sup>   | UNFCCC ICTU  | Provide guidance to all Parties to the Paris Agreement on the information to be included in NDCs to facilitate clarity, transparency and understanding when communicating NDCs.   |
|   | NDC Partnership & Green Climate Fund (GCF)                             | Climate Investment Planning and Mobilization Framework, 2024 <sup>154</sup>  | NDC Partnership/ GCF framework   | Provide a common reference point and language for countries and climate finance providers to move from climate commitments to mobilising finance needed to meet those commitments.  |
|   | Centre for Economic Transition Expertise (CETEX)                       | Taking the lead on climate action and sustainable development: Recommendations for strategic national transition planning at the centre of a whole-of-system climate response, 2024 <sup>155</sup> | CETEX recommendations  | Principles-based recommendations for strategic national transition planning, designed to steer, accelerate and coordinate whole-of-government and whole-of-economy climate action while also advancing sustainable development. |
|   |  | Handbook to strategic national transition planning, 2024 <sup>156</sup>  |  |   |
|   | GFANZ  | Making National Transition Ambitions Financeable Through Planning, DRAFT   | GFANZ principles   | Set out perspectives from private financial sector on the steps government could take towards effective national transition planning that attracts private finance.   |
|   | European Commission  | Guidance to Member States for the update of the 2021-2030 NECPS, 2022 <sup>157</sup>   | EU NECP guidance   | Provides guidance to EU Member States on the process and scope of preparing national energy and climate plans (NECPs) in the form of principles and good practice.  |
| Institutional Investors Group on Climate Change (IIGCC) | Making NDCs investable - the investor perspective, 2024 <sup>158</sup> | IIGCC NDCs   | Investor-led recommendations for countries preparing updated NDCs to attract private investment. |   |

The frameworks have been mapped against the proposed elements to identify potential gaps in existing material and establish commonalities between these frameworks. The mapping is not a judgement on the comprehensiveness of these frameworks, as each has been developed for a different purpose; some with more narrow focus, such as the NDC Partnership framework, and some intended as supplementary guidance to existing such as the IIGCC NDC recommendations.

Table 4: Mapping table of the scope of different sovereign transition assessment schemes/frameworks

| Element   | Sub-element                                    | Existing sovereign transition frameworks/assessments |                           |                  |                       |                     |                  |             |            |
|---|--|--|---------------------------|------------------|-----------------------|---------------------|------------------|-------------|------------|
|   |  | ASCOR framework                                      | NDC Partnership framework | EU NECP guidance | CETEX recommendations | OECD IPAC dashboard | GFANZ principles | UNFCCC ICTU | IIGCC NDCs |
| <b>1.1. Commitments and targets</b>   | Baseline emissions                             | ✓  |                           |                  | ✓                     | ✓                   | ✓                | ✓           | ✓          |
|   | Methodology for target setting                 | ✓  | ✓                         | ✓                | ✓                     |                     | ✓                | ✓           |            |
|   | Broad scope (beyond mitigation)                |  |                           | ✓                | ✓                     |                     | ✓                | ✓           | ✓          |
|   | Methane targets in addition to CO <sub>2</sub> |  |                           | ✓                | ✓                     | ✓                   |                  | ✓           | ✓          |
|   | Short-, medium- and long-term targets          | ✓  | ✓                         | ✓                | ✓                     |                     | ✓                | ✓           | ✓          |
|   | Legally binding target                         | ✓  |                           | ✓                | ✓                     | ✓                   | ✓                |             |            |
| <b>1.2. Whole-of-government approach</b>  |  |  | ✓                         | ✓                | ✓                     |                     |                  |             | ✓          |
| <b>1.3. Align core financial processes with green to align all government functions with the transition</b> | Green budgeting practices                      |  | ✓                         |                  |                       |                     |                  |             |            |
|   | Green budget tagging                           | ✓  | ✓                         |                  | ✓                     |                     |                  |             |            |
|   | Financial policy                               |  | ✓                         |                  | ✓                     | ✓                   | ✓                |             |            |
| <b>1.4. Transparency</b>  | Ownership                                      | ✓  | ✓                         |                  | ✓                     |                     | ✓                |             | ✓          |
|   | Climate advisory body                          |  |                           |                  | ✓                     | ✓                   | ✓                |             |            |
|   | Internal review/adaptive programming           | ✓  | ✓                         |                  | ✓                     |                     | ✓                | ✓           |            |
|   | Disclosure                                     |  | ✓                         |                  | ✓                     | ✓                   | ✓                | ✓           |            |
| <b>1.5. Using all available policies to deliver transition</b>  | Market-based real economy policies             | ✓  |                           |                  | ✓                     | ✓                   | ✓                |             | ✓          |
|   | Non-market-based real economy sectoral policy  | ✓  |                           |                  | ✓                     | ✓                   | ✓                |             | ✓          |
|   | International policy                           | ✓  |                           | ✓                | ✓                     | ✓                   |                  | ✓           |            |
|   | Taxonomy                                       |  | ✓                         |                  | ✓                     |                     |                  |             |            |
| <b>2.1 Explore alternative solutions for transition spending under fiscal constraint</b>                    |  |  |                           |                  |                       |                     |                  |             | ✓          |
| <b>2.2 Sovereign GSS+ issuance</b>  |  |  |                           |                  | ✓                     |                     |                  |             | ✓          |
| <b>2.3 Public financial institutions</b>  | Green NDB investment                           |  | ✓                         | ✓                | ✓                     |                     | ✓                |             |            |
|   | Green SWF investment                           |  |                           |                  |                       |                     |                  |             |            |
| <b>2.4 Central banks and financial regulators</b>   | Financial and prudential regulation            |  |                           |                  | ✓                     |                     | ✓                |             | ✓          |
|   | Monetary policy                                |  |                           |                  | ✓                     |                     |                  |             |            |

## Appendix 3: Sovereign transition planning documents reviewed

Table 5. Selected sovereign transition plans and related documents

| Sovereign     | Documents reviewed   |
|---------------|--|
| <b>Brazil</b> | <ul style="list-style-type: none"> <li>• Brazil NDC<sup>159</sup></li> <li>• Plano Clima 2024-2035 (National Climate Plan)<sup>160</sup></li> <li>• Ecological Transformation Plan (PTE)<sup>161</sup></li> <li>• Brazil Platform for Climate Investments and for Ecological Transformation (BIP)<sup>162</sup></li> </ul>   |
| <b>China</b>  | <ul style="list-style-type: none"> <li>• The People's Republic of China First Biennial Transparency Report on Climate Change.<sup>163</sup></li> <li>• China's Achievements, New Goals and New Measures for Nationally Determined Contributions.<sup>164</sup></li> <li>• China's Mid-Century Long-Term Low Greenhouse Gas Emission Development Strategy.<sup>165</sup></li> </ul> |
| <b>France</b> | <ul style="list-style-type: none"> <li>• Mitigation Plan: Stratégie Nationale Bas Carbone 3.<sup>166</sup></li> <li>• Multiannual energy transition plan<sup>167</sup></li> <li>• National Adaptation Plan, PNACC<sup>168</sup></li> <li>• Treasury report on the impacts of the transition<sup>169</sup></li> </ul>   |
| <b>Japan</b>  | <ul style="list-style-type: none"> <li>• Japan NDC<sup>170</sup></li> <li>• The Basic Policy for the Realization of GX<sup>171</sup></li> </ul>  |
| <b>UK</b>     | <ul style="list-style-type: none"> <li>• 2021 UK Treasury Net Zero Review (impacts on the economy and public finances)<sup>172</sup></li> <li>• UK Net Zero Strategy (2nd LT-LEDS)<sup>173</sup></li> <li>• 2035 UK NDC<sup>174</sup></li> </ul>   |

Note: mapping assesses the presence of the sub-elements, not the strength of the sub-element or overall transition plan.

Table 6: Mapping of the scope of different sovereign transition plans

| Element   | Sub-element                                    | Sovereign transition plans |    |       |       |        |
|---|--|----------------------------|----|-------|-------|--------|
|   |  | France                     | UK | China | Japan | Brazil |
| <b>1.1. Commitments and targets</b>   | Baseline emissions                             | ✓                          | ✓  | ✓     | ✓     |        |
|   | Methodology for target setting                 | ✓                          | ✓  | ✓     |       |        |
|   | Broad scope (beyond mitigation)                |                            |    |       |       | ✓      |
|   | Methane targets in addition to CO <sub>2</sub> |                            |    |       |       |        |
|   | Short-, medium- and long-term targets          | ✓                          | ✓  | ✓     | ✓     | ✓      |
|   | Legally binding target                         | ✓                          |    |       |       | ✓      |
| <b>1.2. Whole-of-government approach</b>  |  | ✓                          |    |       |       | ✓      |
| <b>1.3. Align core financial processes with green to align all government functions with the transition</b> | Green budgeting practices                      | ✓                          | ✓  |       |       |        |
|   | Green budget tagging                           | ✓                          | ✓  |       |       |        |
|   | Financial policy                               |                            | ✓  | ✓     |       | ✓      |
| <b>1.4. Transparency</b>  | Ownership                                      |                            |    | ✓     |       | ✓      |
|   | Climate advisory body                          | ✓                          |    |       | ✓     |        |
|   | Internal review/adaptive programming           | ✓                          | ✓  | ✓     |       | ✓      |
|   | Disclosure                                     | ✓                          | ✓  | ✓     | ✓     | ✓      |
| <b>1.5. Using all available policies to deliver transition</b>  | Market-based real economy policies             | ✓                          |    | ✓     | ✓     | ✓      |
|   | Non-market-based real economy sectoral policy  | ✓                          |    | ✓     | ✓     | ✓      |
|   | International policy                           | ✓                          |    | ✓     | ✓     |        |
|   | Taxonomy                                       | ✓                          |    | ✓     |       | ✓      |
| <b>2.1 Explore alternative solutions for transition spending under fiscal constraint</b>                    |  |                            |    |       | ✓     |        |
| <b>2.2 Sovereign GSS+ issuance</b>  |  | ✓                          | ✓  | ✓     | ✓     |        |
| <b>2.3 Public financial institutions</b>  | Green NDB investment                           | ✓                          | ✓  |       |       | ✓      |
|   | Green SWF investment                           |                            | ✓  |       |       |        |
| <b>2.4 Central banks and financial regulators</b>   | Financial and prudential regulation            |                            | ✓  | ✓     |       |        |
|   | Monetary policy                                |                            | ✓  | ✓     |       |        |

## Endnotes

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