

International

International Thematic Study on the Global Stocktake



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Executive Summary

The Global stocktake (GST), as outlined in Article 14 of the Paris Agreement aims to take stock of the implementation of the Paris Agreement, its purpose and long-term goals. The outcomes of the GST are intended to inform the enhancement of NDCs, and to find innovative forms of international cooperation to enable climate action. The GST therefore represents an important opportunity to inform future climate action given the inadequacy of the global effort to respond to climate change to date.

This report aims to respond to the research question: How do we understand progress on mitigation and adaptation actions in five countries? How might such actions enable countries to shift to pathways to more sustainable development and how can such shifts be supported by consistent finance flows (Art 2.1c) and provision of finance (Art 9)? What might be the role of the global stocktake in strengthening national action and international cooperation?

To answer these questions the report starts with an introduction to the GST and a literature review of trends in the provision of international climate finance. The report adopted a bottom up approach through the use of case studies to covers all elements of the GST (albeit to varying levels of depth) namely mitigation, adaptation, and support including finance and capacity building. The report culminates in a set of key messages for the GST to consider.

The study has explored the use of pathways as a way of illustrating where we need to go and how we might get there, and importantly how financing concrete activities through Articles 2.1c and 9 could be a way of strengthening the linkages between these articles to enhance collective progress toward long-term goals. Mitigation and adaptation pathways might be considered by the technical dialogue of the GST, testing whether people holding diverging world views might find common ground around pathways. Pathways are therefore of interest for this study in so far as offering a way of bridging articles 2.1c and 9. Just transitions to net zero emissions will require finance, as will increasing resilience to the impacts of climate change – and addressing loss and damage. Innovative finance is needed for inclusive, equitable climate resilient and low emissions development pathways.

Despite significant increases in climate finance over the last decade, there remains a large shortfall between the provision of ICF and the financing needs of developing countries. An expanded role for both the public and private sector in ICF provision will be necessary to meet the funding needs of developing countries. A disproportionate amount of ICF provision has been allocated to mitigation, which has meant limited finance has been allocated towards adaptation and loss and damage. Equity requires a balance between funding of mitigation and adaptation, and addressing loss and damage (iGST, 2021).

Two enabling factors for enhancing ICF identified by the literature review included international cooperation and metrics. International cooperation, has the potential to de-risk investments, ensure that financing needs are better articulated, and align incentives between stakeholders. Standardised reporting metrics and targets are necessary to ensure more efficient and equitable delivery of ICF.

The findings of the literature review were corroborated by the findings of the SNAPFI partner inputs. The following key messages emerged from the research. In general, the GST in taking stock of

implementation could identify some technical guidance on standardising methodologies for reporting climate finance flows whilst also taking account of local circumstances, informing but not replicating the detailed work under transparency. Metrics for adaptation and finance for adaptation emerged as a key priority. This included the need to develop more shared understanding of the Global Goal on Adaptation (GGA) and develop appropriate adaptation metrics, as a way to clearly communicate the adaptation finance needs, tracking of progress on the goals and finance attracted. Metrics for adaptation are complex, and qualitative approaches should be considered in the GST, while quantitative metrics might not 'aggregate' in the same way as tons in mitigation or Euros in finance. Adaptation metrics to assess progress of action and support over time and process metrics, were some of the innovations that were identified. Lack of coordination between ministries within countries working on adaptation metrics continues to be an issue that requires attention. The GST could assist by collecting information on adaptation to assess which adaptation actions have been successful at attracting finance, and the level and type of finance attracted.

With the increasing attention on 1.5°C and the push for net zero GHG emissions, a possible tension has emerged for mitigation, prioritising long term goals over near term action or vice versa. This study found a disconnect between Long Term Low Emissions Development Strategies (LT-LEDS) and Nationally Determined Contributions (NDCs). It may be useful to think of LT-LEDS providing a long-term perspective on near-term action articulated in the NDCs, and as an opportunity to translate goals into pathways that can be used to crowd in finance through Articles 2.1c and 9. The GST in its efforts to take stock of progress, could seek to understand reasons for disconnect and discuss ways to enhance alignment between the short and the long term goals to enable just transitions to net zero GHG emissions.

The GST is particularly relevant for Article 2.1c as it is currently the only place where the question of alignment of finance flows is seriously considered under the UNFCCC (iGST, 2021). A detailed and precise set of guiding questions can help to systematically map available information, highlight gaps and critical areas where more research will be necessary. To advance on the definition and operationalisation of Articles 2.1c and 9, important questions for the GST include scope and sources in the sense of what counts as climate finance and whose responsibility it is to provide ICF (Article 9), as well as the reach of Article 2.1c and how this links to the mobilisation goal under Article 9. Agreement on common indicators, boundaries and metrics is imperative. One of the most important methodological gaps concerns the question of alignment of finance flows in the broader sense and how this can be measured considering in particular the need to access data from non-Party stakeholders and the challenges associated with forward looking metrics and scenarios. This is central for Article 2.1c but also relevant for Article 9 in order to be able to assess the consistency of mobilised finance with the Paris Agreement goals and its key principles.

A registry of demand and supply of climate finance might be considered by the technical review of the GST to draw on experience of matching action and support, while also relating this to the NDC registries for both adaptation and mitigation. Building a diverse range of capacities will be essential for enhancing finance and international cooperation, underlining the importance of the often-overlooked ability goal outlined by Article 2.1b. Such capacities will be needed for articulating support needs, developing metrics and using metrics to track progress. The GST should seek to characterise the capacity challenge in a granular way to identify specific capacities that should be treated as priorities moving forward.

Research at the country level shed light on how progress in countries is of relevance for the GST and the status of preparations for countries to participate in the GST. It was notable that none of the countries have initiated preparations for the GST and at this point in time, the purpose of the GST and countries' participation in it remains unclear, suggesting additional work is needed to communicate the relevance of the GST for countries.

This, the first GST is likely to influence the shape of subsequent GSTs and therefore design features are vital. This study aims to provide insights as to how the GST could contribute to enhancing the role of climate finance and international cooperation.



Chapter one

Introduction

1. Introduction

This international thematic study (ITS) seeks to understand progress on mitigation and adaptation in five countries and their potential to contribute to a shift towards sustainable development pathways. Specifically, the study is interested in how such actions and shifts could be better supported by consistent finance flows (Art 2.1c) and provision of finance (Art 9). The research explores the role of the global stocktake (GST) in strengthening national action and international cooperation. The GST has thematic areas and elements – a selection of which are reflected in this report including: the purpose of the GST, mitigation, including response measures; adaptation, including loss & damage; support, comprised of finance, technology and capacity; transparency and domestic preparations for the first GST. The ITS draws on country case studies conducted by SNAPFI¹ partners for Year 3 of the project, bringing together research conducted by teams in Brazil (FGV), India (TERI), Indonesia (ITB), South Africa (UCT), as well as the European Union (DIW, Vivid Economics, NCI, IKEM). Research in the project focuses especially on policy and financial instruments that support the just transition to a zero emissions pathways and can contribute to the mobilization of private and public finance for climate friendly investments.

Our approach takes a broader look at the GST given the limited literature on the GST. Exploring these questions through country case studies, allowed a bottom up perspective on adaptation and mitigation progress and allowed us to investigate whether such progress could contribute to a shift towards pathways for sustainable development and the relevance of Articles 2.1c and 9 for supporting these shifts in countries. The case studies also allowed us to explore how the GST is being received in countries and the status of country preparations for participating in the GST. The timing of this study is relevant given that preparations for the first GST are under way and that this first GST will set the tone and structure for subsequent GSTs. Our intention to influence the design of the GST, therefore makes the timing of this study appropriate.

1.1. What is the GST?

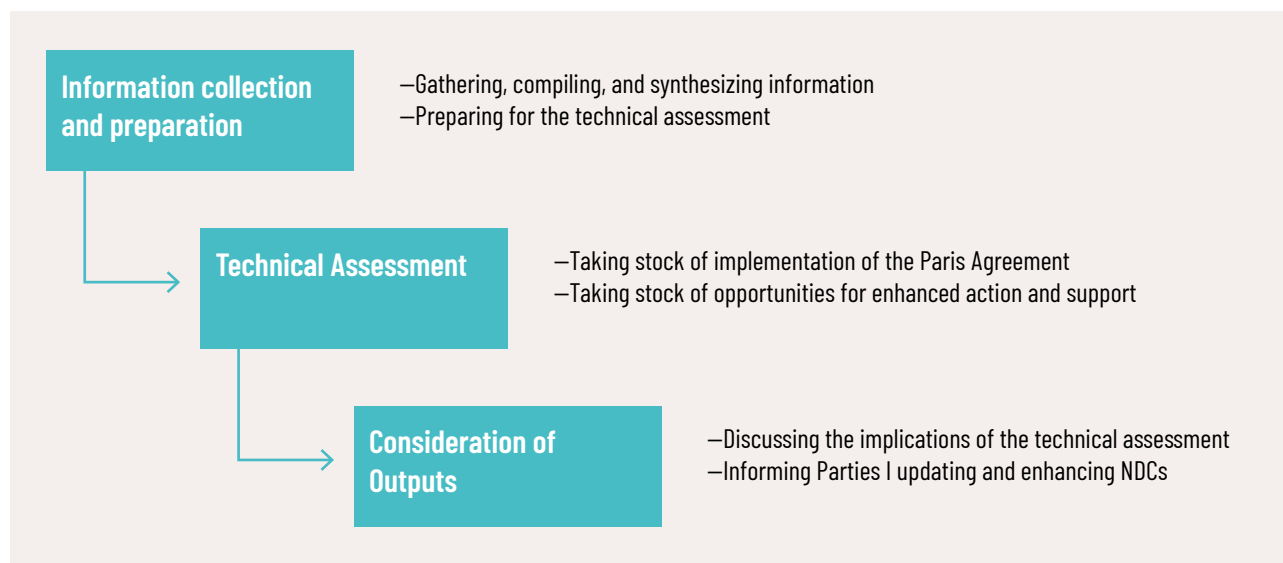
The GST aims to take stock of the implementation of the Paris Agreement and assess the world's collective progress towards achieving the purpose of the agreement and its long-term goals. The aim and long term goals of the Agreement will be elaborated on in section 3. The first GST will be completed by 2023 and happen every five years, thereafter. Article 14 (para 1) of the Paris Agreement describes the expected role of the GST below (UNFCCC, 2015, p. 12).

“The Conference of the Parties serving as the meeting of the Parties to this Agreement shall periodically take stock of the implementation of this Agreement to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals (referred to as the “global stocktake”). It shall do so in a comprehensive and facilitative manner, considering mitigation, adaptation and the means of implementation and support, and in the light of equity and the best available science.”

¹ Strengthen national climate policy implementation: SNAPFI . https://www.diw.de/en/diw_01.c.697920.en/projects/strengthen_national_climate_policy_implementation__comparati___ical_learning___creating_linkage_to_climate_finance_-_snapfi.html

Figure 1 illustrates the three phases of the GST their objectives and associated activities.

Figure 1: Three phases of the GST (WRI, 2021)



Initial preparations for the first GST started during 2021, with a call for information, and a formal start at COP26 in Glasgow. The technical dialogue will meet in three times, in June 2022, November 2022 and June 2023. In the second half of 2023, a decision and / or declaration will be prepared.

The outcomes of the GST are intended to inform the enhancement of NDCs, as countries take the outcome of the first GST into account as they prepare their next NDC – to be communicated in 2025; and to find innovative forms of international cooperation for climate action. Ultimately, the GST is seeking to achieve ‘ratcheting up’ ambition, in the light of science and equity.

1.2. Articles 2.1c and 9.3

Articles 2.1c and 9.3 as stated in the Paris Agreement are included below.

“Article 2.1. This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:

c.) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.” (UNFCCC, 2015: 2)

“Article 9.3. As part of a global effort, developed country Parties should continue to take the lead in mobilizing climate finance from a wide variety of sources, instruments and channels, noting the significant role of public funds, through a variety of actions, including supporting country-driven strategies, and taking into account the needs and priorities of developing country Parties. Such mobilization of climate finance should represent a progression beyond previous efforts.” (UNFCCC, 2015: 8)

1.3. Research question and areas of emphasis

Within the broad scope of the GST, the SNAPFI consortium is well placed to consider linkages to finance and policy. We formulated the following overall research question to explore some of these linkages.

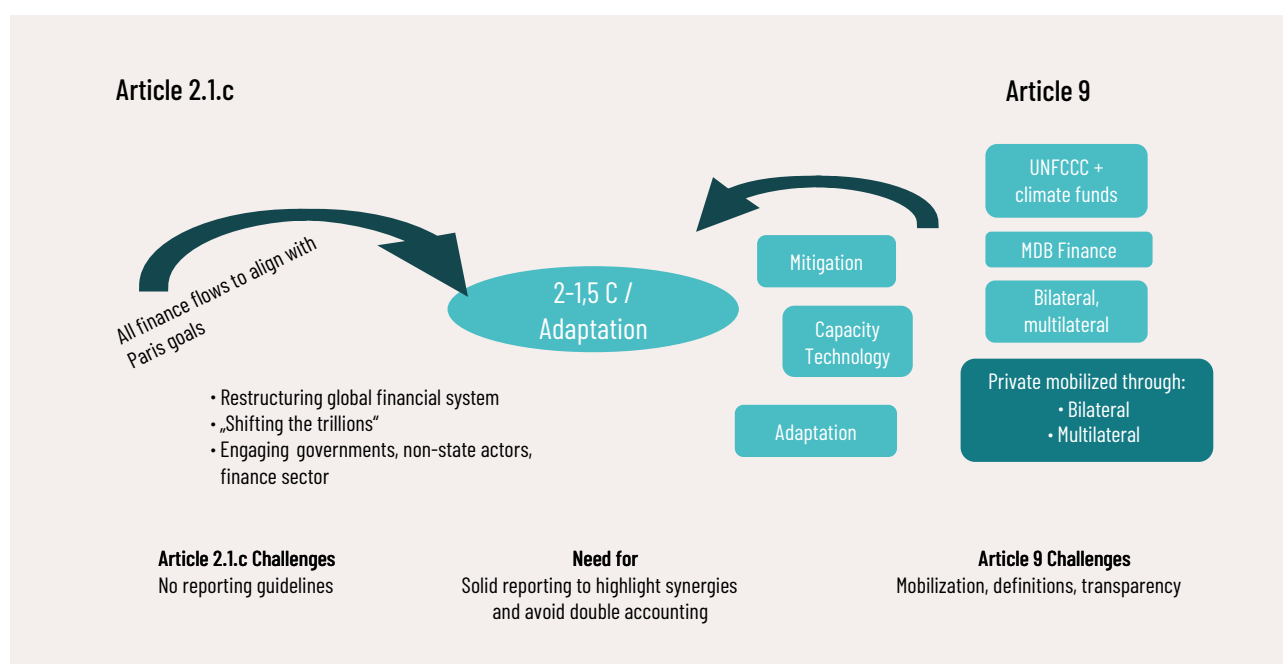
Overall research question

How do we understand progress on mitigation and adaptation actions in five countries? How might such actions enable countries to shift to pathways to more sustainable development and how can such shifts be supported by consistent finance flows (Art 2.1c) and provision of finance (Art 9)? What might be the role of the global stocktake in strengthening national action and international cooperation?

1.3.1. Areas of emphasis

This study is structured so that it addresses all themes of the GST but is designed to explore in more detail some aspects, that a) reflect the interests of research partners; and b) draw on analytical strengths of the research teams. A thread running throughout the study is how to utilise the finance goals of the Paris Agreement outlined in Articles 2.1c and 9 to enhance adaptation, mitigation and sustainable development in developing countries. The following series of figures aims to illustrate our conceptual framing of this challenge.

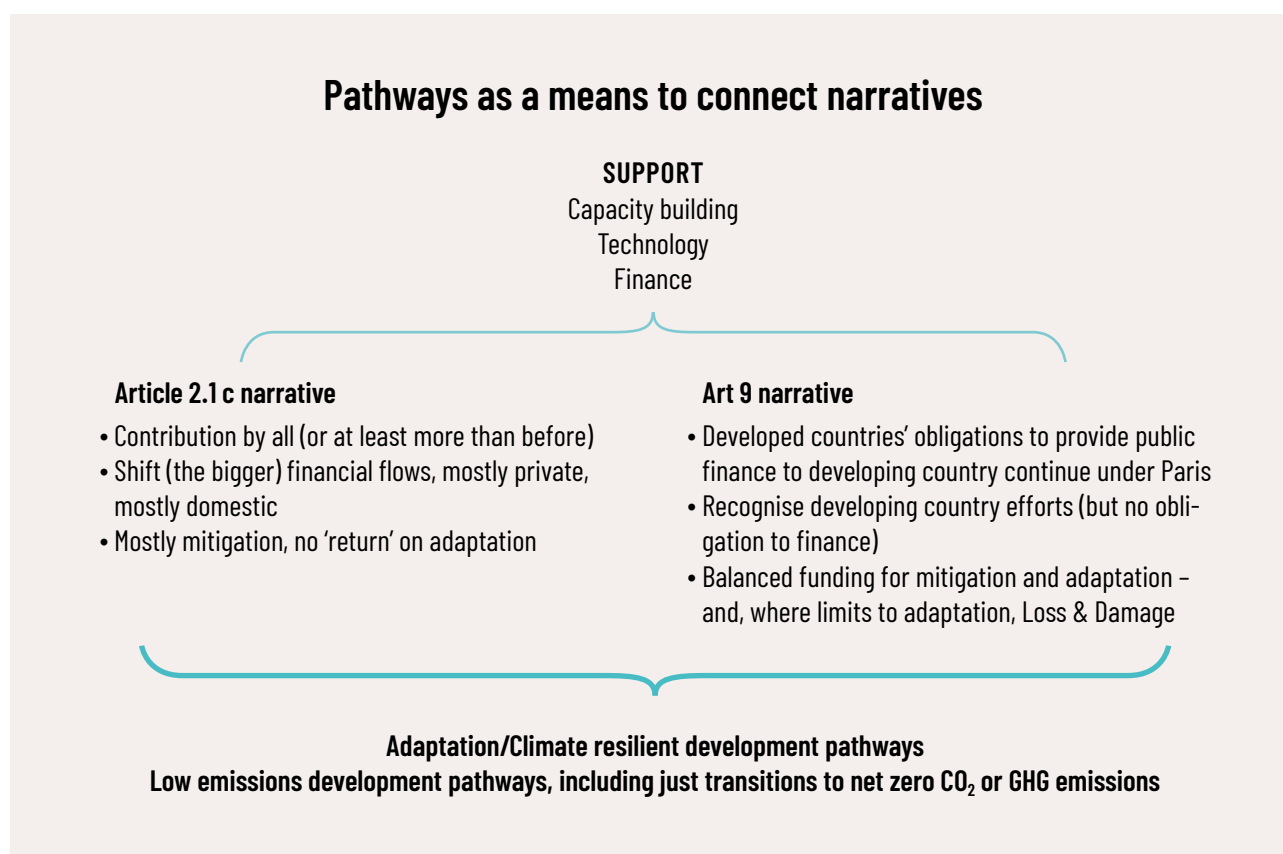
Figure 2: Conceptual framing of the roles of Articles 2.1c and Article 9 in achieving the long term goals of the Paris Agreement



Unlocking the finance needed to achieve the long term goals of the Paris Agreement will require the full implementation of Articles 2.1c and 9. Therefore, rather than thinking about these goals as separate and even competing, it is more appropriate to see them as different but complementary parts of the puzzle and therefore interlinked and working towards the same ultimate objectives and goals of the Paris Agreement, as shown in Figure 2 above.

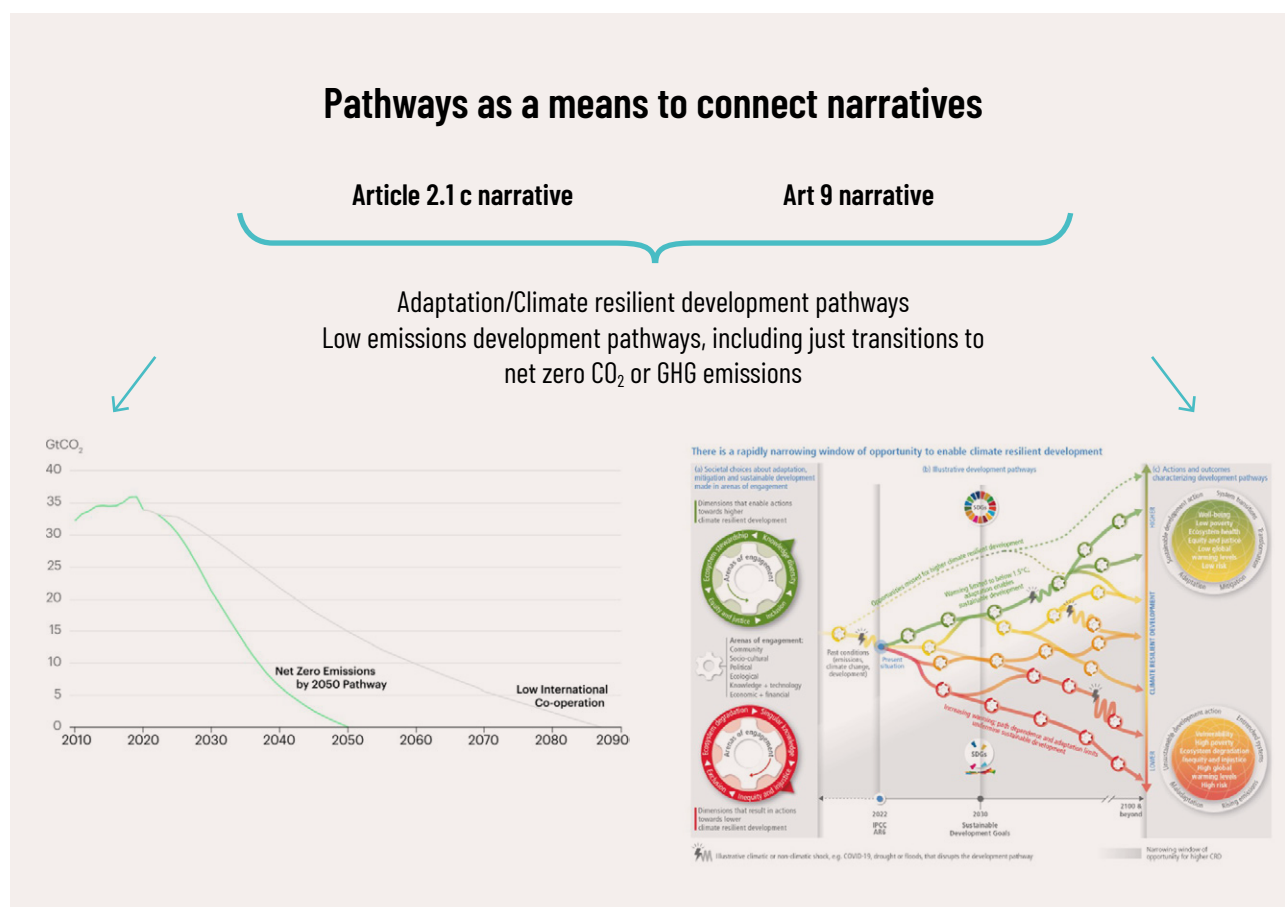
Pathways can be a concrete way of connecting what have at times been regarded as disconnected or even competing narratives associated with Articles 2.1c and 9. Figure 3 shows two quite different narratives in the middle part. Yet both narratives require support – finance, technology and capacity, as shown at the top. The focus here of support is on finance. The lower part of the Figure 3 suggests that climate resilient and low-emissions development pathways are two constructs around which finance flows and provision-mobilisation might be addressed together, thereby overcoming the competing framings sometimes suggested by these narratives.

Figure 3: Pathways as a means to connect narratives of Articles 2.1c and 9 to promote climate resilient development pathways and low emissions development pathways (Adapted from Zamariolio et al., 2021)



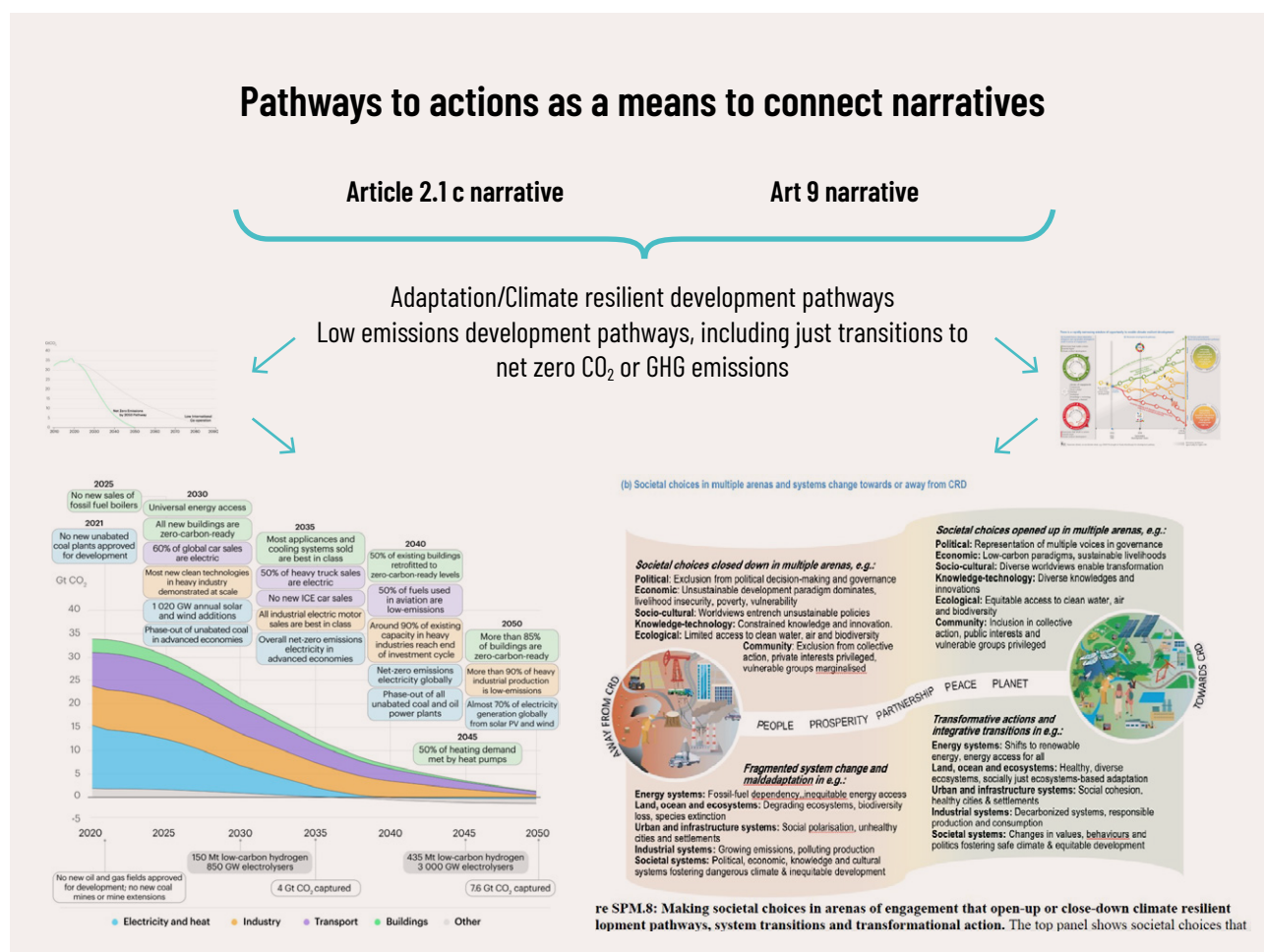
But where are adaptation and mitigation pathways leading us and how do they help to define the finance challenge, the work of both Articles 2.1c and 9? The intention is that these pathways lead us to climate resilient and low emissions development futures as illustrated in Figure 4 below (IPCC WGII, 2022).

Figure 4: Exploring climate resilient development pathways and low emissions development pathways to illustrate the finance challenge and roles of Articles 2.1c and 9 (IEA, 2021; IPCC WG II, 2022)



Part of the challenge of unlocking the level of finance required for the long term goals of the Paris Agreement is articulating the need and demonstrating the trajectories that are to be funded. Pathways can help in providing detail and clarity for both of these, by clearly communicating the speed and direction of travel, and by listing the actions that need to be funded to realise these pathways. Figure 4 above demonstrates the pathways that are required for climate resilient and low emissions development futures whereas Figure 5 illustrates the actions that will make up the pathways and will need to be funded.

Figure 5: Actions to fund to realise climate resilient development pathways and low emissions development pathways (IEA, 2021; IPCC WG II, 2022)



To follow a pathway, countries and actors in countries need to take a series of actions and make important societal choices to turn a pathway into reality. Breaking down pathways into these actions and decisions and communicating them in timeframes, makes concrete the financing challenge, including the sequence of actions. As Figure 7 illustrates, most of the actions contained in these pathways will require both public and private sources of finance. Following the pathway will, in reality, require international and domestic sources, and many kinds of finance – grants, loans, concessional loans and other instruments. When taken down to the concrete level, there need be no competition between Articles 2.1c and 9, both are imperative if the pathways compatible with the long term goals of the Paris Agreement are to become a reality.

1.3.2. Thinking more about climate resilient development pathways

In a world where development pathways currently lead to global warming well above 1.5°C (de Coninck et al., 2018), every development option moves us towards or away from a climate resilient and low

emissions future. Each development choice determines the range of future development options that build climate resilience (Schipper et al., 2022). Related to this, it is generally accepted that social and economic inequities in terms of climate impacts and resource availability compound vulnerability to climate change. More than three billion people globally live in regions that are highly vulnerable to climate change (Birkmann et al., 2022). “Globally, households with income in the top 10 % contribute 36–45 % of global GHGs, while those with incomes in the bottom 50 % contribute 13–15 % (high confidence). About two thirds of the top 10% live in developed countries and one third in other economies” (IPCC 2022).

Development choices, and the extent to which they forefront equity, will determine whether just transitions to a global net-zero pathway exacerbate, replicate or address injustices. Climate resilient development is founded on principles of equity and inclusion, climate justice, and ecosystem health and human well-being.

There are multiple possible pathways for all levels of society to pursue. Opportunities for climate resilient development vary by location because of different conditions, capabilities, capacities and preferences. Pursuing climate resilient, low-carbon and sustainable development pathways involves confronting complex synergies and trade-offs between development pathway options, and the contested values and interests that underpin climate mitigation and adaptation choices. Similarly, economic sectors and regions are exposed to different opportunities and challenges in facilitating climate resilient development. Adaptation and mitigation must be aligned to local and regional contexts.

Solutions to the problem of climate change have traditionally been framed as the implementation of a raft of adaptation and mitigation options as mechanisms for reducing climate-related risks. Climate resilient development pathways draw attention to a set of societal priorities and the role of climate and non-climate policies in enabling climate action and sustainable development. Options for climate resilient pathways will be contested; processes of system transition and societal transformation require appropriate enabling conditions and inclusive governance. There remain only a few decades in which to chart climate resilient development pathways with potential to transform prevailing development practices and move towards an equitable climate resilient and net zero emissions future, action must start now. To keep the 1.5°C temperature goal alive, global emissions will need to halve by 2030 and reach net zero by 2050, illustrating that ambitious action in the next few years is imperative for keeping these longer term goals in reach (IPCC, 2021).

This study aims to make a contribution to exploring how these two important articles of the Paris Agreement can assist in enhancing finance and international cooperation to support mitigation, adaptation and sustainable development in developing countries and to demonstrate the role of the GST. Section 2, a literature review, gives an overview of the GST and trends in the provision of international climate finance. The review highlights cooperation and metrics and targets for adaptation finance as key focus areas for the upcoming GST. The purpose and aim of the Paris Agreement are then introduced by section 3. Sections 4, 5, 6 based on contributions from SNAPFI partners zoom in on mitigation, adaptation and support (including finance and capacity building), their relation to articles 2.1c and 9 and insights for the GST. The study concludes by offering key messages that could be considered in the design and operation of the GST.



Chapter two

The purpose, aim and long term goals of the Paris Agreement – Situating the GST

2. The purpose, aim and long term goals of the Paris Agreement – Situating the GST

The Paris Agreement aims to strengthen the global response to climate change while contributing to sustainable development and poverty eradication (UNFCCC 2015a). The purpose refers to implementing the Convention and its objective in Article 2 (UNFCCC 1992). The Paris Agreement outlines six long-term global goals with which to pursue its purpose, three in Article 2.1 and three others for mitigation, adaptation and finance as listed in decision 19/CMA.1 (Winkler & Marquard, 2021).

Article 2.1 sets out three of the long-term goals:

- a) temperature (well below 2°C and pursuing efforts to 1.5°C),
- b) ability to develop in a climate resilient and low emissions manner; and
- c) making financial flows consistent with climate resilient and low emissions development

There is a long-term goal for mitigation (Art 4.1) and a global goal for adaptation (Article 7.1), both of which refer back to the temperature goal in 2.1a. Article 9.3 outlines a mobilisation goal for developed countries, and paragraph 53 of the Paris decision quantifies the collective quantified goal for finance. As outlined in Figure 2 and following above, we argue that finance should be understood in relation to both Article 2.1c and 9.3, with pathways providing a concrete way to connect different approaches.

Article 14.1 says the GST is “to assess the collective progress towards achieving the purpose of this Agreement and its long-term goals ...”. The purpose is understood as a reference to Article 2.1 (which uses the word ‘aim’). The long-term goals are outlined above. Moreover, provisions in a legal agreement are read against their purpose making the purpose important in this legal sense.



Chapter three

Literature review

3. Literature review

To set the context of our study, we review literature on international climate finance and identify enabling conditions to make finance more effective in achieving the long-term goals of the Paris Agreement.

3.1. Trends in ICF provision

3.1.1. Historical analysis

This section responds directly to the GST’s call for inputs by surveying historical trends in ICF provision. It reviews existing data on ICF provision, looking at the split between public and private sector finance provision and the amount of finance provided relative to the need, broken down by theme and geography. The data allows policymakers and practitioners to critically assess shortcomings in historical ICF provision, with a view to incentivising expanded and better targeted financing in the future.

The Paris Agreement defines a differentiated role for developed countries to provide financial support to developing countries of \$100 billion per year. The mobilisation of ICF is closely linked to the course of climate negotiations over the last decade. These began in earnest in 1994, when the UNFCCC was established. From the mid-2000s onwards, flows into carbon market funding for climate action began to increase via market-based mechanisms under the Kyoto protocol. Article 8 of the 2009 Copenhagen accord commits developed countries to mobilising jointly “...\$100 billion a year by 2020 to address the needs of developing countries”. Following a decrease at the end of the Kyoto Protocol’s first commitment period in 2012, public climate finance began to rise for both mitigation and adaptation, with large increases leading up to and following the negotiation of the Paris Agreement in 2015 (Vivid Economics 2020).

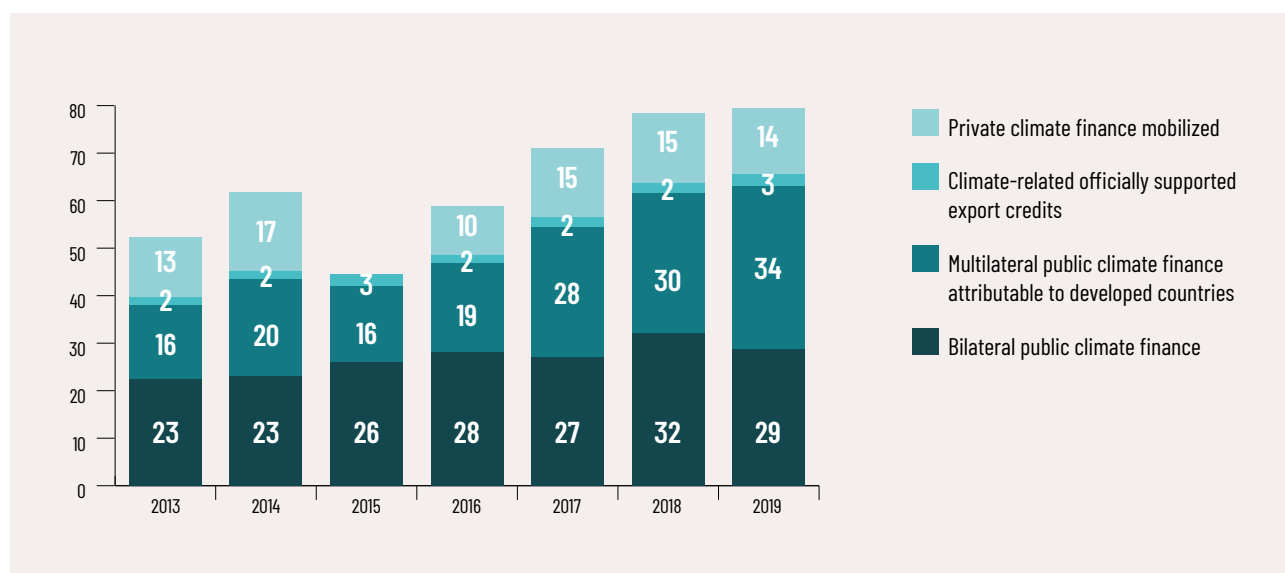
Article 9 of the Paris Agreement formalises the obligations of developed nations to fund mitigation and adaptation activities in the Global South. It also urges signatories to a concrete roadmap to meeting the \$100 billion goal by 2020:

“Developed country Parties shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation in continuation of their existing obligations under the Convention.” (Article 9(1)).

“[the Conference] strongly urges developed country Parties to scale up their level of financial support, with a concrete road map to achieve the goal of jointly providing \$100 billion annually by 2020 for mitigation and adaptation while significantly increasing adaptation finance from current levels and to further provide appropriate technology and capacity-building support” (Decision 1/CP.21, Article 114).

Although estimates of public finance provision vary, it has clearly fallen short of the \$100 billion target set in Copenhagen. Public climate finance includes finance provided by governments and their agencies, climate funds, and development and climate finance institutions. CPI estimate that in 2019/20, global provision of public climate finance totalled \$321 billion, approximately half of total climate finance (CPI 2021a). The bulk of this financing went to developed country recipients. Although estimates of public climate finance vary depending on definitions and data sources used (Roberts et al., 2021), upper bound estimates from the OECD suggest that total ICF provision – including the private sector – was approximately \$80 billion in 2019. As, public finance estimates fall well short of the \$100 billion goal. Although public finance provided by developed countries shows an increasing trend since 2015 (SCF, 2021), it totals only \$45.4 billion in 2017 and \$51.8 billion in 2018. Bilateral and multilateral DFIs have increased their commitments from 2017/18 by 59% and 14% respectively and many have made commitments to increase financing in the short term and to mainstream climate into all development finance (SCF, 2021; CPI 2021b). These trends are summarised in Figure 6.

Figure 6: Climate finance provided and mobilised from developed to developing countries (\$billion)



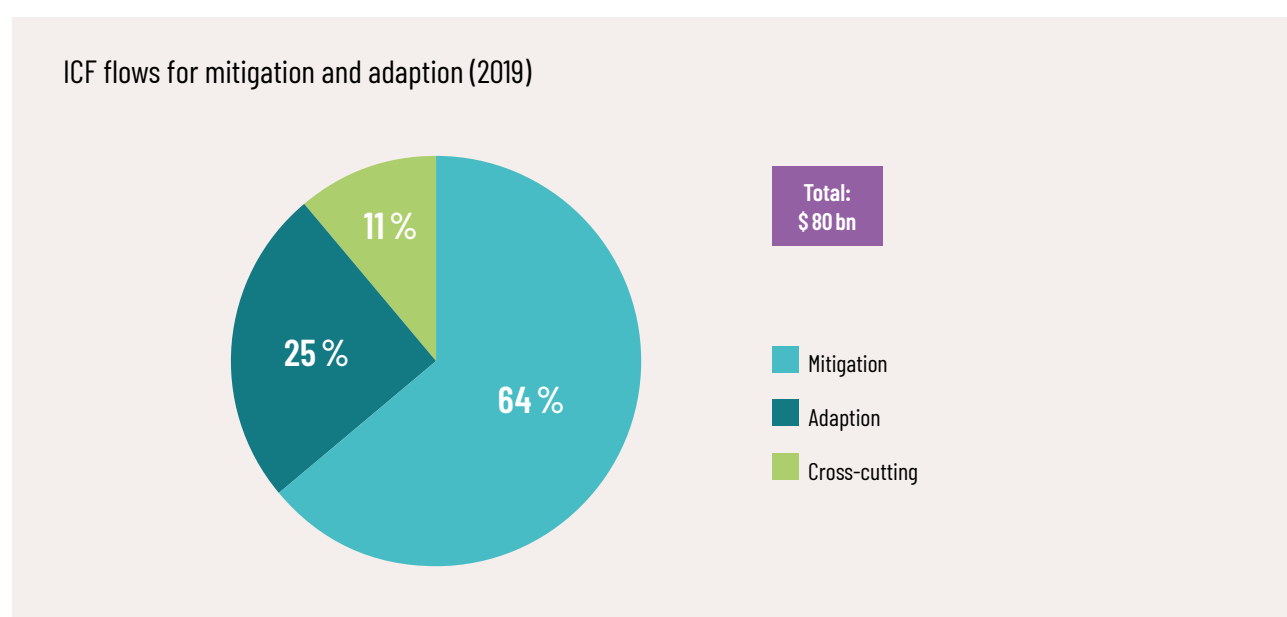
Note: Figures for mobilised private climate finance from 2016 onwards are not directly comparable with those for 2013-14 due to the implementation of enhanced measurement methods and a resulting gap in the time series in 2015.

Source: Vivid Economics, from (OECD, 2021)

Although identifying and quantifying financing needs remains a challenge for developing countries, historical ICF provision clearly falls significantly short of what is needed. According to SCF, developing countries have identified 4,274 needs to respond to climate change and have costed only 41% of these. Costed needs amounted to \$5.8–5.9 trillion up until 2030 (SCF 2021a). Costed mitigation needs are larger than costed adaptation, and developing countries identified more adaptation needs than mitigation. Identified and costed needs are likely an understatement as there is a lack of available data, tools, and capacity of developing countries to assess and cost needs, especially for adaptation. The SCF estimates suggest that at least \$502 billion of costed needs will require international sources of finance. This is again a lower bound estimate however, as information was not provided on the sources of finance for 89% of costed needs (SCF 2021a).

Historical data also suggests that ICF provision remains principally focused on reducing emissions, possibly at the expense of adaptation and loss and damage. In 2019, finance for adaptation increased by 20%, versus 7% for mitigation. The total ICF provided from developed to developing countries in that year was \$80bn. However, mitigation still accounted for two thirds of ICF provided and mobilized (SCF 2021). Mitigation finance continued to be dominated by the energy and transport sectors which together accounted for around half of total international public climate finance flows in 2019. Finance for adaptation provided and mobilised by developed countries totalled \$20 billion and mainly went to investment in agriculture, forestry and fishing and water and sanitation (SCF, 2021)(OECD, 2021). Figure 78 shows the split between ICF flows for mitigation and adaptation.

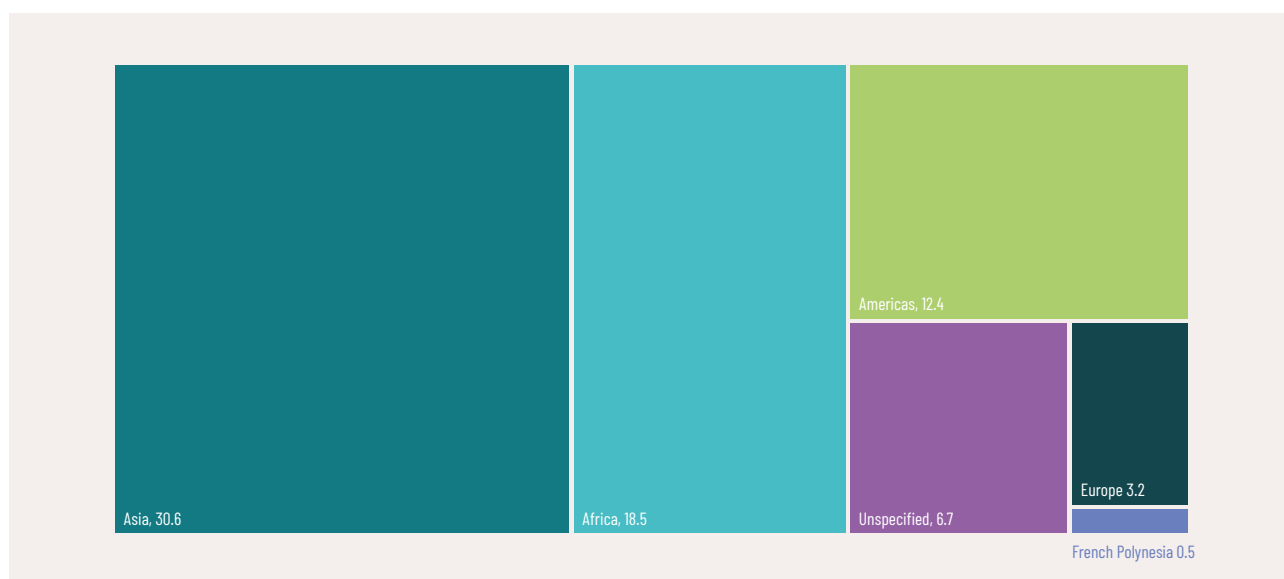
Figure 7: Climate finance by use category



Source: Vivid Economics, from (OECD, 2021)

Because it accounts for the bulk developing country emissions, Asia has historically received the lion's share of developed country ICF provision. ICF flows to Asia from developed countries averaged approximately \$30 billion per annum between 2016 and 2019 (CPI 2020). Figure 8 shows that this is significantly more than Africa and the Americas. While climate finance for Least Developed Countries (LDCs) continued to increase in 2019, climate finance for Small Island Developing States (SIDS) did not. For both LDCs and SIDS, adaptation finance represented more than 40% on average over 2016-2019, which is significantly higher than the average for developing countries overall (21% on average over 2016-2019)(OECD, 2021). Information on the receipt of climate finance also remained limited. Although there have been improvements in submission of data from developing countries, there remains a time lag in data availability for reporting (SCF 2021b).

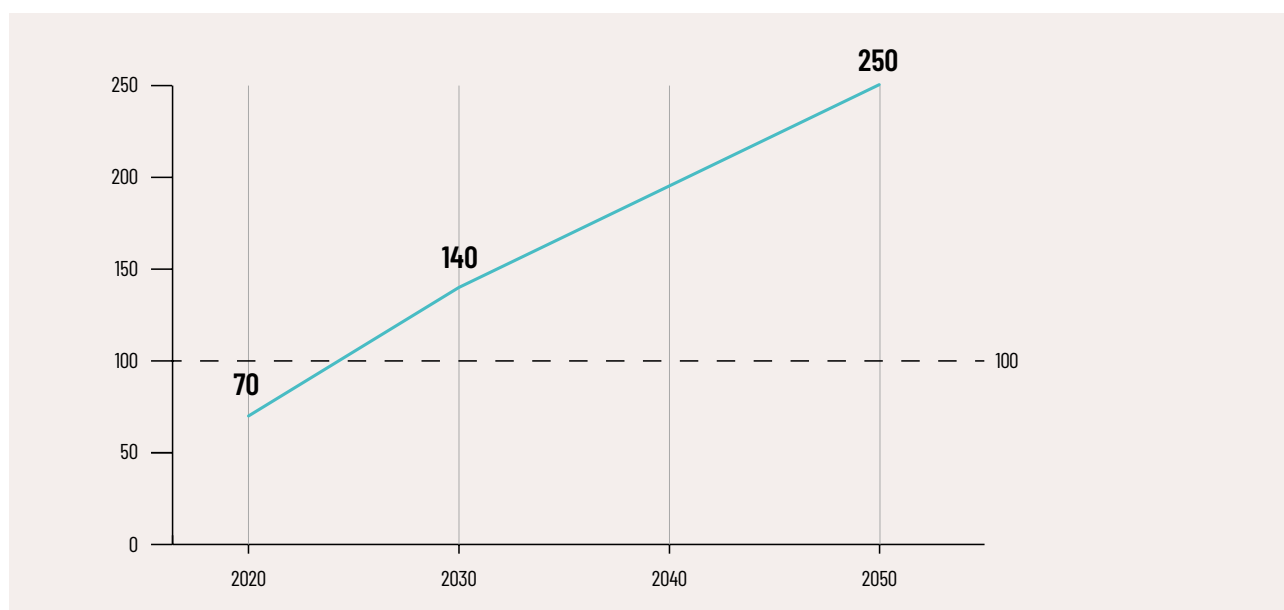
Figure 8: Regional split of climate finance provided and mobilised, \$bn (2016–19, annual average)



Note: The regions cover only developing countries
Source: Vivid Economics, from (OECD, 2021)

The trends highlighted above suggest a significant financing gap for adaptation, driven in part by the difficulties in communicating and quantifying financing needs. The Independent GST estimated that annual financing needs for adaptation alone in developing countries will reach \$140 bn by 2030 and \$240 bn by 2050, shown in (iGST 2021a). These figures alone dwarf the \$100 billion per annum target, reinforcing the need for the GST to incentivise expanded ICF provision in the future.

Figure 9: Annual Financing Needs for Adaptation in Developing Countries



Note: The figure only includes funds for developing countries
Source: Vivid Economics, adapted from (iGST 2021b)

Three preliminary conclusions can be drawn from this overview of historical ICF trends. First, historical ICF flows have proven insufficient to meet the needs of developing countries, even when considering upper bound estimates. Even upper bound estimates fall well short of what is required. Second, ICF flows exhibit a bias towards mitigation financing in Asia, where the bulk of global emissions are. This has arguably resulted in finance for adaptation and loss and damage being neglected, driven in part by difficulties communicating and quantifying financing needs for these activities. Finally, historical ICF provision has been dominated by the public sector, despite the private sector controlling the bulk global financial assets.

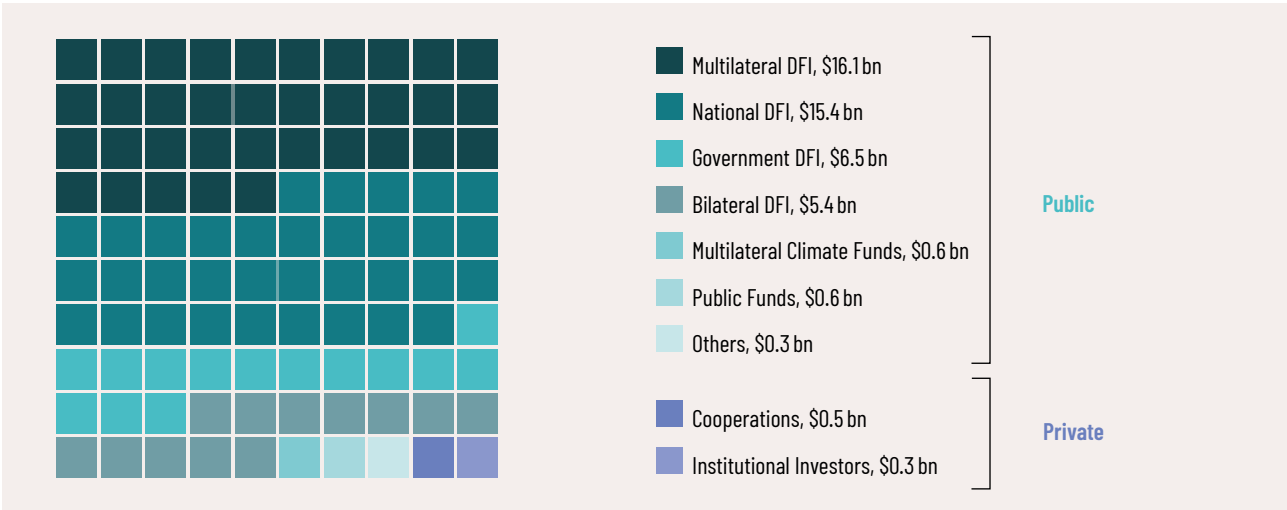
The scale of additional finance required suggests an expanded role for the private sector may be necessary in the future. The GST would benefit from a fuller consideration of the future roles of public and private sector stakeholders in future ICF provision, given the challenge that lies ahead.

3.2. Enabling factors for more efficient ICF provision

3.2.1. Cooperation

Section 2.2.1 showed that historical ICF flows have been geared towards reducing emissions, often at the expense of adaptation and loss and damage. Mitigation accounted for 64 % of ICF provision in 2019 (see Figure 10), despite multilateral organisations such as GCF arguing that an equal split between mitigation and adaptation is necessary and developing countries having identified more adaptation needs (GCF 2020; SCF 2021a). Even within existing adaptation funding, there was a significant shortfall of private sector financing. According to CPI data, less than 3 % of global adaptation was sourced from private corporations or institutional investors. While this may reflect difficulties in tracking and monitoring financial flows, it nonetheless underlines the potential for vastly increased private sector involvement in adaptation financing. Given the potentially large pool of private sector financing that could be mobilised towards meeting climate goals, and the obligations laid down in Article 2(1)(c), the GST has a clear interest in considering the reasons behind this shortfall.

Figure 10: Adaptation investment sources by actor (\$bn, 2019/2020 annual average)



Note: These figures are global. Figures may not sum due to rounding. Source: CPI 2021

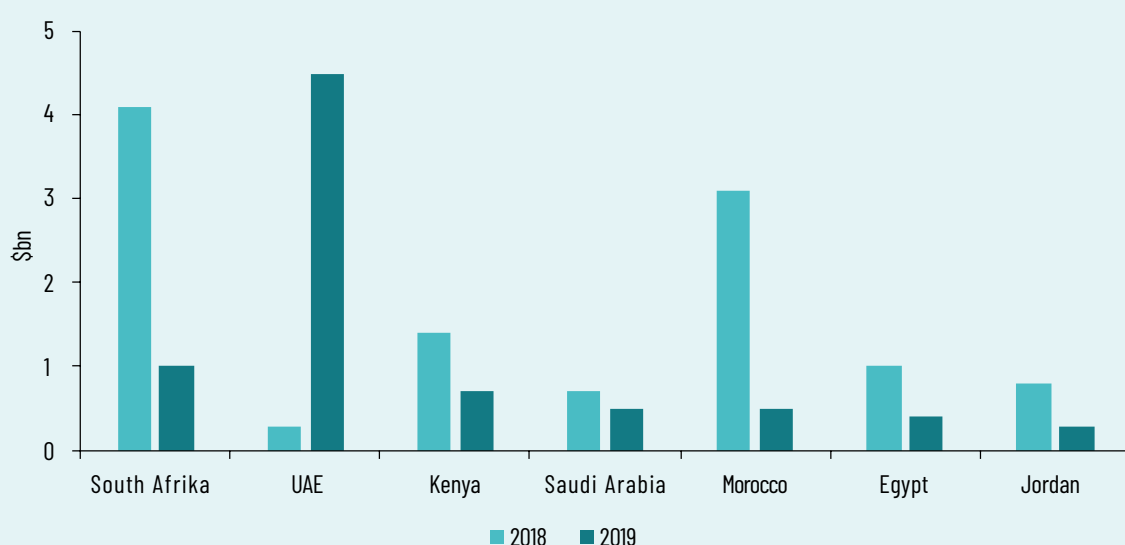
Although these financing patterns can be partially explained by the justifiable need to reduce emissions, the literature suggests that they are also influenced by institutional and political economy considerations. Blackrock's policy brief argues that multilateral development institutions have struggled to overcome the regulatory and reputational risks associated with investing in low-income countries and mobilising climate finance (Blackrock 2021b). Roberts et al. argue that private investments tend to go where money is to be made or where emissions reductions can be accurately measured (Roberts et al. 2021). This may not always correlate to regions or sectors at the highest risk of climate hazards. Africa is the most vulnerable continent to the effects of climate, with over 95% of the continent's agriculture dependent on regular rainfall (African Development Bank 2021). However, it continues to struggle to attract financing for adaptation, with the bulk of ICF flows continuing to flow to Asia where global emissions are concentrated (see Figure 6 above). ICF has also been traditionally targeted at national governments or development banks, often to the exclusion of local institutions and communities responsible for implementing climate policy. According to IIED, less than 10% of ICF provision in 2016 was "prioritised for local-level activities", leading to women, people with disabilities and other vulnerable people having a weaker voice in climate policy implementation (Soanes et al. 2017).

Regulatory and political uncertainty may also result in volatile financing patterns to developing countries, for both mitigation and adaptation. The problem is well illustrated when considering investments in renewable energy. Energy infrastructure tends to require significant up-front investments which are unattractive to international investors without a "high level of confidence that the project will make adequate returns". That confidence depends, in part, on future power prices – which are difficult to predict. Thus, according to UNEP, "almost all non-hydro renewable energy projects built have gone ahead thanks to some sort of contract securing the electricity selling price that their owners would receive" (Frankfurt School-UNEP Centre/BNEF 2019). The ability to offer investors such sophisticated financing arrangements depends on multiple factors, including the sophistication of the local financial sector, the strength of the rule of law, and political stability (Frankfurt School-UNEP Centre/BNEF 2020).

Box 1 Renewable energy financing in the Middle East and Africa

Historical ICF flows for renewable energy to developing countries have been extremely volatile. In 2018, South Africa attracted the largest share of renewable energy financing in the Middle East and Africa region, at \$4 billion. However, this figure dropped by more than two-thirds to under \$1 billion in 2019. According to UNEP, this was a result of the government “wrestling with financial problems at Eskom, the [state-owned] energy utility”. Because Eskom typically buys renewable energy from independent producers through power-purchase agreements (PPAs), its potential insolvency signalled to investors that their long-term return was not guaranteed.

Renewable energy financing in the Middle East and Africa, 2018-2019



Source: Vivid Economics, adapted from UNEP/BNEF 2019 and 2020

‘Enabling factors’ that overcome these political and regulatory issues to ensure more effective ICF provision are therefore of direct interest to the GST. This review identifies the theme of effective cooperation, one such enabling factor for more effective ICF provision. As Roberts et al. point out, when the \$100 billion pledge was originally made at Copenhagen in 2009, developing country recipients expected the dissemination of funds to be centrally coordinated, through the then new UNFCCC Green Climate Fund. However, “what ensued is quite the opposite: climate funds are funnelled through over 100 channels, very few of which are controlled in meaningful ways by developing nations” (Roberts et al. 2021).

3.2.2. Metrics and targets

Academics and policymakers increasingly highlight the lack of standardised measurement and reporting metrics as a barrier to effective ICF provision. This issue is particularly acute for adaptation financing where quantifying and communicating financing needs has proven challenging for developing countries. Developed countries are required to report on their climate finance support biennially, through providing transparent and consistent information (UNFCCC 2020). The Paris Agreement, however, does not explicitly define what counts as climate finance nor how to track and measure it. This has led to a variety of accounting and reporting approaches which are inconsistent and do not accurately measure the amount of climate finance provided (Roberts and Weikmans 2017). This issue is closely linked to deficiencies in cooperation, in that greater coordination between stakeholders could help resolve reporting inconsistencies (Roberts et al. 2021). The GST is intended to support efforts to identify and alleviate these types of barriers to effective ICF provision, including best practice in emissions accounting and target setting. The scope of reportable metrics is extremely wide, which means that a critical review of existing reporting standards is beyond the ambit of this review. Nevertheless, two general issues in the current reporting framework are identified in this review.

The first issue is methodological: financing bodies lack a consistent framework to classify and report on climate finance provision. Even the preliminary exercise of classifying flows as “climate finance” is contentious and there is an ongoing debate over what finance should count towards the \$100bn target, even if it is classified as “green”. The Copenhagen Conference originally intended the \$100bn to be “new and additional” to what already exists. This has resulted in contentious debates and an erosion of trust between Parties, with wealthy nations claiming to be on track to deliver against the \$100 billion target (OECD 2019), and advocates, researchers and developing countries disagreeing (Ackom and Motty 2019; Weikmans and Roberts 2019; Roberts et al. 2021).

The diversity of approaches to classifying financial flows has also led to ambiguity over precisely what counts as new and additional climate finance. The Centre for Global Development argues that additional development finance – flows that would not have happened, in the absence of formal agreements – increased by only \$43.6bn from 2009 to 2018 (Mitchell, Ritchie, and Tahmasebi 2021). “Mapping approaches” have traditionally been used to classify ICF provision, where flows are classified based on the sector that they fund. This can follow an objectives-based approach, such as the Rio Markers, or a benefits-based approach (see Table 1). Most developed countries have adopted the less-resource intensive objective-based approach using the Rio markers. This tags spending as having climate change considerations as its “principal”, a “significant”, or no objective. Whilst this approach cannot measure any secondary benefits associated with financing, it is also relatively inflexible and lacks a clear approach to determining whether finance is new and additional (SCF 2021c; IDFC 2019a).

Table 1: Comparison of objectives-based and benefits-based approach to mapping climate finance

| | Objectives-based | Benefits-based |
|---|---|---|
| Approach | Finance is classified based on the stated or implicit objectives of the programme/project | Finance is classified based on the portion of benefits from the programme associated with adaptation and mitigation outcomes in comparison to other benefits. |
| Advantages | Intuitive and easy to apply. Does not require high levels of climate relevant knowledge. Low cost and can be implemented quickly. | More robust methodology and less vulnerable to subjectivity. |
| Limitations | Very subjective as objectives can be interpreted in different ways. | More resource intensive both to establish and to conduct assessment. |
| Examples of countries using this approach | Bangladesh, Nepal, Pakistan, OECD ODA database | Afghanistan, India, Cambodia, Indonesia |

Source: Vivid Economics, adapted from (Resch et al. 2017)

Financing bodies also lack a coherent system to quantify financing gaps and measure the impact of their contribution, particularly for adaptation. This links directly to the challenges in communicating investment need for activities outside of mitigation, highlighted in section 2.2.1. In contrast, mitigation financing has relatively well-established methodologies for linking emissions reductions to financial flows, particularly in the private sector, where the PCAF methodology is ubiquitous (PCAF 2020). Subsequent sections explore this issue in greater detail, assessing whether standardised metrics for mitigation financing could be adapted to an adaptation context.

The second issue is data-focused: ICF providers do not collect and report a consistent set of metrics. CPI argue that definitional challenges, accounting issues, confidentiality restrictions and a lack of universal impact metrics has resulted in limited data availability. Although this issue is particularly acute for adaptation, data remains sparse for mitigation finance outside the energy sector (CPI 2019). More fundamentally, tracking financing flows over time and setting targets aligned to climate goals remains largely unexplored (IDFC 2019b).



Chapter four

Mitigation

4. Mitigation

Building on the research questions, objectives and literature review, this section looks at mitigation from a country perspective, followed by sections on adaptation and support.

4.1. Mitigation – a long-term goal guiding near-term actions

The long-term goal for mitigation outlined in Article 4.1 aims for global peaking of greenhouse gas emissions as soon as possible and acknowledges that peaking will take longer in developing countries. The goal implores countries to make rapid reductions after peaking to reach a balance of emissions sources and sinks in the second half of the 21st century. These efforts are to be pursued on the basis of equity, and drive sustainable development to reduce poverty (UNFCCC, 2015). The long term goal on mitigation should guide near-term actions through for example providing a long-term perspective on mitigation targets in NDCs (UNFCCC, 2021 – 1/CMA.3, para 35). However, in many cases there is a disconnect between the NDCs and long-term low greenhouse gas emission development strategies (LT-LEDS), or no long term perspective at all. This represents a serious gap and risk to the ability of near term action to put countries and the world on track for the desired long term goals. The case of India provides some reflections on the challenges of aligning long term goals with near term action and the role of finance.

4.1.1. Aligning long term goals and near term actions in India

In 2015, India submitted its INDC to the UNFCCC which included a mitigation goal to reduce emissions intensity of its GDP by 33–35%, below 2005 levels by 2030 as well as support requests amounting to USD 834 billion until 2030 (DEA, 2020). At 1.9 tonnes, India's per capita CO₂ emissions are less than half the world average and the lowest among G20 countries. In terms of historical cumulative CO₂ emissions from 1850 to 2019, India accounted for only 3.2% of the cumulative world emissions, while G7 countries together accounted for 44.1% of the cumulative CO₂ emissions. Despite low historical responsibility for the cumulative global GHG emissions, India has announced mitigation targets as contained in their NDC.

Since then, the country has pursued these targets with an ambitious renewable roll out programme as one of the core features of their mitigation strategy. It has also expanded its renewable energy target from 175 GW by 2022 to 450 GW in 2030 (MoEFCC, 2021). As of 2021, 151.4 GW had been installed. There has also been progress in terms of finance from international sources with almost US \$ 30 billion in 2015 and US \$ 34 billion in 2016 out of total finance channelled through bilateral, regional and other channels and the rest through multilateral channels that were approximately \$6–8 billion in year 2015 and 2016 (DEA, 2020). Although India chose not to submit an updated NDC in time for COP 26, the country is currently in the process of revising its NDC and preparing its LT-LEDS.

Prime Minister Modi's COP 26 statement reiterated India's commitment toward the global agenda to combat climate change. His vision of Panchamrit or five nectar elements consisted of, installation of 500 GW non fossil energy capacity by 2030, reduction in emissions intensity of GDP by 45% from 2005 levels, 50% installed electricity capacity coming from renewable sources by 2030, 1 billion tonnes reduction in projected carbon emissions by 2030 and India to become net-zero emissions by 2070. All the five quantified targets pertain to mitigation. Communicating these targets as actions and part of long term pathways could be a way for the country to demonstrate how funding available through Articles 2.1c and 9.3 could be allocated to concrete actions to drive long term low emissions and climate resilient development pathways in developing countries. Not only would this help to illustrate how Articles 2.1c and 9.3 could work together in India, and what activities they could fund, but it would also help to how to connect near term action with long term trajectories, an increasingly important part of attracting ICF.

The Indian Prime Minister also emphasized that developed countries will have to fast track climate finance and provide \$ 1 trillion to the developing world to achieve their cumulative climate change mitigation targets. One can understand these announcements have implications for long-term mitigation and climate finance, even while emphasising that meeting global goals can only be achieved by action by all. If one added up India's and other pathways to net zero CO₂ or GHG emissions, an overall assessment of collective progress to global peaking, and eventually reaching the 'balanced' in Article 4.1, in the context of equity, poverty and sustainable development, could be assessed.

To accelerate mitigation actions and to meet the net zero target there are three areas of actions that need to be taken urgently by India which include, the acceleration of technology, supporting clean energy and lower carbon-choices and removing unavoidable emissions with the assistance of, for example, carbon capture and storage technology. To achieve these actions policy has a fundamental role in driving the transition to net-zero emissions. Collective action is another important element that should be considered (TERI & Shell, 2021). Hence, to achieve the target, both Articles 2.1c and 9 will be needed to enhance finance and international cooperation to achieve these long term goals.

From an institutional perspective, one of the most interesting developments in India was the establishment of the Apex Committee for Implementation of Paris Agreement (AIPA) in 2020. The committee is made up of fourteen ministries and will oversee the targets of climate change that India has committed to under the Paris Agreement. The key purpose of AIPA is to oversee a coordinated response on climate change matters and ensure India is on track to achieving its targets such as the NDC. AIPA will also focus on carbon markets in India and act as a guide for different instruments available for responding to climate change. Hence, AIPA is likely to play a convening and coordinating role and act as an advisory body to give recommendations for enhancing the country's targets and is an example of building institutional capacity. If other countries similarly build such capacity, this would contribute to achieving the capacity building goal outlined in Article 2.1b. The GST could play a role here by collecting information on similar types of committees that have been established around the world, experiences which countries could draw on in their efforts to build institutional capacity for implementing the Paris Agreement in their countries.

In order to achieve its net zero vision, India needs to chart-out a roadmap and implementation plan mapping out sectoral transitions. Climate finance is a key pillar in enabling climate actions. The recent estimates for taking climate actions are laying out a case for trillions of dollars. According

to some analyses the total climate finance availability in India is estimated to be Rs. 29.064 trillion with the share of Rs. 9.026 trillion from international finance and Rs. 9.026 trillion from domestic finance (DEA, 2020). But the present scope, scale and speed of these flows of climate finance are insufficient and inadequate (PIB, 2019). Financial requirements as well as the development and transfer of technology and capacity building represent some of the barriers to the implementation of climate change mitigation measures required for attaining net zero in India. Despite the global understanding of the need for and the support to ensure adequate provision of international climate finance and the alignment of financial flows with low emission climate resilient development pathways, the finance provided for India and more generally for the developing world fall far short of the needs articulated. Furthermore, lack of information about new technologies makes it difficult for prospective investors to commit funding (ICRIER, 2019). According to the projections to meet the NDC from 2017 to 2030 the cumulative cost is estimated to be \$ 7,057 billion. However, the gap in financing NDCs could be in the around \$ 1,140 billion by 2030 (Rashmi, 2021). 3,633E+11

Hence, key emerging gaps include source of finance, technology and capacity building including;

- Technology and capacity building: There is international support required for some R&D support of novel technologies that through pilot projects demonstrate their potential for commercialization of technologies. All the targets announced by Prime Minister Modi at COP26 will also depend on technology transfer and the installation of new green energy hubs in India.
- Finance: There is a need for ramping up the investment. As the Indian energy sector alone needs investment of \$ 500 billion to meet its 450 GW target over the coming decade (IEEFA, 2021). However, India already has market instruments such as the PAT (perform-achieve-trade) scheme which can be used as revenue neutral mechanism. There are some industries participating voluntarily with their own internal carbon pricing which can be traded for additional revenue.
- Policy: There is a need for a holistic and coherent roadmap and policy support from government. For transitioning an LT-LEDS accompanied by clear laws and definitions will be needed. Hence government support is required, policy measures need to be adapted and should aim at lowering the risk and cost of finance flows in greener areas and also ensuring the higher predictability in the scale of finance.

India's long-term goals are indicative of the country's long term vision but these should be supported by pathways, pointing to a need for further work that can provide information on how India aims to achieve these goals. What would it take in order to achieve these goals? What actions would India be undertaking in short and medium term and do they put the country on the desired long term trajectory? Availability of information and transparency around these pathways would help in answering some of these questions and in more clearly articulating India's financing needs to the international community, be it under Article 2.1c or 9.3. This too is where the GST could play a role by requesting Parties to submit such information and then consolidating the information to determine how alignment between the short, medium and long term is being approached globally. The need of the hour is to assess structural changes required in high emitting sectors and across the economy. This can provide a more concrete picture of where and what precise efforts are required in a particular sector or technology. Such information would also enable India to assess whether they are on track to meet their long term goals or need to make adjustments to align their near and medium term goals with their long-term pathway. It would provide a response to the call in Glasgow to align NDCs with LT-LEDS (decision 1/

CMA.3, paragraphs 32-35). Countries may find it useful to think of LT-LEDS as providing a long-term perspective on near-term action.


An independent framework for a LT-LEDS for India, developed by TERI, consisted of five pillars: macro-economic context, analytical framework, sectoral transitional mapping, technological & financial mapping, and institutional arrangements (TERI & Shell, 2021). These five pillars were identified as important ingredients for developing a robust LT-LEDS. A well designed LT-LEDS would be capable of establishing the pathways with which NDCs would need to be aligned to put the country on track for its 2070 net zero target. This would be beneficial from both domestic and international standpoints, as domestically it would assist with enhancing coordination across development policy and climate action. It could also help to improve coherence across existing policies, institutional frameworks and actors. Internationally, it could provide a vehicle to articulate the conditions for action, particularly in terms of global technology learning, commercialization and diffusion, and the financing needs of India's transition. Further, it would provide a strong signal for international investors, which are targeting a low carbon transition (Michael et al., 2020). Lastly, a LT-LEDS could be a way for India to demonstrate its contribution to the global long term temperature and mitigation goals, which is relevant for the GST.

Relevance for the GST

As the GST will assess collective progress on the long term temperature goal, the mitigation goals and response measures that countries like India contribute to this overall goal will be essential for assessing collective progress. For this both long term goals, and near term action that puts India on pathways compatible with their long term goals are needed as well as an ability to communicate progress on these. For the GST process, the following information would be required

- Standard techno-economic information: This includes quantitative indicators that might be included as part of a statistical yearbook on emissions, energy, the economy, and land use. This information typically focuses on physical or economic outcomes.
- Societal information: This includes information that provides insight into societal readiness to undertake mitigation consistent with the Paris goals and the societal, political, institutional changes that could and would be needed to make it happen.

Clearly access to information and transparency must be key features for the GST and for Party and non-Party submissions, in order for the GST to play the role it seeks to in terms of assessing collective progress and informing future action.



Chapter five

Adaptation, including Loss & Damage

5. Adaptation, including Loss & Damage

5.1. A global goal on adaptation

Article 7.1 outlines the global goal on adaptation (GGA) which aims to enhance adaptive capacity, strengthen resilience and reduce vulnerability to climate change. The goal also aims to contribute to sustainable development and establish an adequate adaptation response in light of the temperature goal articulated in Article 2.1 a (UNFCCC, 2015).

The GGA is particularly important for developing countries that are most vulnerable to the impacts of climate change and therefore most in need of attracting adaptation finance, and yet it is not well understood. The Glasgow–Sharm el-Sheikh work programme on the GGA should create more shared understanding, running from 2022 to 2023 (decision 1/CMA.3, paragraphs 11 and 12).

It seems helpful to think of the GGA as a composite goal. In other words, the GGA can be conceptualised as being made up of various different parts – as distinct from an aggregate goal as in mitigation, where one can add up tons of CO₂-eq. This difference is well illustrated in Figure 4 which shows the multiple dimensions that climate resilient development pathways need to consider compared to tons of CO₂ that are used for low emissions development pathways. It also demonstrates the complexity of linking long term goals, near term action and pathways for adaptation.

Given the complexity of defining the GGA, articulating and disaggregating the finance needs of the GGA and tracking progress towards achieving the GGA, a discussion about metrics becomes important. Metrics for vulnerability and adaptation are likely to be diverse given a wide range of climate impacts, and that the same impact will have different effects, given different capacities to adapt – based on different income levels, but also – maybe even more important, broader capabilities. Note that Article 2.1b aims to „increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production” (UNFCCC, 2015). We argue that ability, references in 2.1b, relates to capabilities – which include capacity-building, technology and finance. Such abilities are needed for both climate resilient and low emission development – consistent with Figure 3 and Figure 4, in the previous sections. The GST could assist in assembling a granular picture of the types of capabilities required for implementing the Paris Agreement, as well as where the major needs or gaps are that should be prioritised for support.

When thinking about the GGA and the long term an omission that emerges is the insufficient integration of adaptation in terms of ‚formulation’ and ‚communication’ in long-term strategies. An analysis of 31 LT-LEDS submitted to the UNFCCC, showed that only five countries had strong adaptation components while all had strong mitigation components². In accordance with Article 14.1, the GST is to comprehensively cover mitigation, adaptation and means of implementation and support. These gaps present a risk to the ability of near term action to put countries and the world on track for the desired long term goals in terms of both mitigation, adaptation and means of implementation³. The role of the GST in tracking progress on adaptation goals and finance is the subject of the following section.

² <https://www.teriin.org/article/critical-analysis-article-419-paris-agreement>

³ <https://wsds.teriin.org/2022/assets/pdf/cop26-charter-book-pdf.pdf>

5.2. The GST for tracking progress on adaptation goals and finance

The GST is intended to track progress towards the global goal on adaptation within the Paris Agreement. The results of the five-yearly stocktake are then intended to feed into revision of each Party's NDCs under the Enhanced Transparency Framework to promote growing ambition in adaptation (and mitigation) commitments. From an adaptation finance perspective, the Green Climate Fund, Adaptation Fund, Least Developed Countries Fund and Special Climate Change Fund are aligned with the UNFCCC to enable flow of finance; whilst bilateral climate finance and debt and equity are also important contributors.

Globally, the estimated annual adaptation costs are thought to reach \$140–300 billion by 2030 and \$280–500 billion by 2050 (UNEP, 2021). Flows of adaptation finance have increased over time, reaching \$30 billion on average in 2017–2018 and \$46 billion on average in 2019–2020 (CPI, 2019; CPI, 2021). However, although the proportion going to adaptation has increased over time, as of 2019/20 this only accounted for 7% of climate finance overall and indicates the need for significant increases to meet adaptation needs by 2030 and beyond (CPI, 2021). However, both tracking adaptation progress and tracking adaptation finance are impeded by no universal consensus on adaptation metrics. The Oxfam shadow report on climate finance applied more rigorous accounting than others and found that “Funding for adaptation to climate change – a priority for the world's poorest countries – rose faster than it has for many years, from around \$9bn (20%) per year in 2015–16 to \$15bn (25%) per year in 2017–18. While the majority of finance still flows to mitigation, this is a significant improvement” (Carty, Kolwazig and Zagema, 2020: 3).

Despite the recognition that adaptation is necessary and the political and financial support for it, to date there are no universally accepted metrics to measure it (Ford et al, 2015). This stems from the fact that there is no one universal definition of adaptation (Dupuis and Biesbroek, 2013). Climate risk is location- and scale-specific and vulnerability is contextual, and thus what adaptation success looks like varies from place to place and across scales (Adger et al, 2005; Spearman and Gray, 2011). Evidence of adaptation in terms of avoided losses may also only accrue in the future. Various typologies and methodologies have been proposed to track adaptation at different scales (GIZ, 2012; Ford et al, 2013; Brooks et al, 2014; Tompkins et al, 2018). The Adaptation Research Alliance (ARA), comprising 130 members, was launched in Glasgow. In a submission to the GST, ARA argues that measuring adaptation is inherently complex and thus approaches should include qualitative metrics. The alliance goes on to suggest a process of “co-creating adaptation metrics with stakeholders, practitioners and knowledge holders leads to greater legitimacy” (ARA 2022). Given this complexity, the technical dialogue of the GST would be well advised to discuss qualitative metrics and approaches to understanding collective progress. Quantitative metrics might be helpful, though they are should be appropriate and not apply thinking developed in mitigation and finance, to adaptation. Adaptation metrics should not ‘aggregate’ adaptation responses, which do not tend to lend themselves to ‘adding up’ in the same way as tons in mitigation or Euros in finance do.

Many early attempts to stocktake adaptation focused on vulnerability assessments and intended actions (Berrang-Ford et al, 2011). More recent assessment show that, even when adaptation plans are in place, they are often not effectively monitored and evaluated (Leiter, 2021). This has implications for

the implementation of adaptation actions (Nalau, 2021). There is also little assessment of adaptation effectiveness (Berrang-Ford et al, 2021).

These consequences also follow through to adaptation finance. Because of the close relationship and complementarities between adaptation and development (McGray et al, 2007), international adaptation finance has typically been assessed on the principle of additionality, whereby the adaptation finance is available to “climate-proof” development interventions (Stadelmann et al, 2011). This close relationship between adaptation and development also makes it difficult to determine adaptation-related expenditure within the budget lines of national budgets. Climate Public Expenditure and Institutional Reviews (CPEIR), budget tagging and budgetary analysis are among the tools used to track climate expenditure – each differing in what they measure, and how (Resch et al, 2017). Nonetheless, relative to mitigation, tracking adaptation finance is difficult due to challenges associated with context dependency, confidentiality restrictions, uncertain causality, and a lack of agreed-upon impact metrics (Richmond & Hallmeyer, 2019). This lack of clarity contributes to some of the challenges of articulating the financing needs of adaptation actions and climate resilient development pathways and how to demonstrate the ways in which Articles 2.1c and 9 could channel support towards these efforts.

Countries are grappling at the national and subnational level with tracking progress on adaptation and finance for adaptation and developing metrics to make tracking and communication of progress possible. The following two sections share experiences from South Africa and Indonesia.

5.3. Metrics for tracking progress on climate finance for adaptation in the Global Stocktake: Consideration of processes in South Africa

The failure to decide upon adaptation metrics and metrics for tracking adaptation finance at international level has led to challenges at the national level. In South Africa, vulnerability assessments have been conducted at a variety of levels, from national through to district, and through a national level climate risk and vulnerability framework (Department of Forestry, Fisheries & the Environment [DFFE], 2020). Various phases of the Local Government Climate Change Support Programme (LGCCSP) have provided capacity building and support to provinces and municipalities. The Let’s Respond Toolkit was developed in 2012 during the LGCCSP pilot phase and aimed at integrating climate change risks into municipal planning processes. The LGCCSP has assisted municipalities to conduct vulnerability assessments, identify emissions sources and develop climate change response plans, including the development of toolkits and guidance documents, and a climate finance training course with online resources (<https://letsrespondtoolkit.org/>).

Adaptation needs are outlined for a 10 year period in the National Climate Change Adaptation Strategy (NCCAS, which also serves as the National Adaptation Plan). In terms of tracking adaptation progress, South Africa has a climate change monitoring and evaluation system that is run by the DFFE. The initial estimated cost to implement the NCCAS was around \$4.7 billion (DFFE, 2019), though these costs are limited to the strategy. South Africa’s NDC update estimated the adaptation cost from 2021 to 2030 to be in the range of \$16 to \$267 billion (DFFE, 2021), based on technical work undertaken by the CSIR

(2021). For 2017-2018, tracked adaptation finance in South Africa amounted to \$325 million per year which accounts for 7% of climate finance tracked during that period (Cassim et al, 2021). Approximately 90% of the adaptation finance flowed from public sources, with the remaining 10% being supported by blended finance, and no private sector investments in adaptation (Cassim et al, 2021). A National Treasury-led pilot for climate budget tracking started in 2022. As is the case at international level, current adaptation finance flows to South Africa are insufficient for the projected initial costs of implementing the NCCAS (Winkler et al, 2021).

Considerations for metrics

As discussions on the methodology for the GST progress, it is important to reflect national and subnational considerations. Defining metrics is subject to tensions as they have to balance applicability with not placing additional burden on the Parties who have to report against them. Methodologies for metrics are inherently normative in that they implicitly or explicitly prioritise some principle(s) over or in tension with others. For example, maximising a cost benefit versus prioritising high vulnerability to climate change associated with poverty, in the use of Saved Wealth as an indicator to measure (Klonschinski, 2021), and so the process of metrics design is naturally a process of contestation.

Some of the challenges with adaptation metrics – as with all indicators – relate to the need to capture phenomena that both compare change over time and over space. This is further complicated by the implicit need for aggregation – where it is not always possible to compare like with like between countries with different contexts, different starting points, and different adaptation needs and outcomes. Indeed, the notion of ‘adding up’ can be seen as applying mitigation or finance thinking, in a way that does not capture the complexity of adaptation responses (see section 5.2 above). Thus far, much of the implicit discussion around metrics has assumed this need for comparability across space but it may be that more appropriate is to select context-specific indicators, for example at the national or subnational scale. World maps can be produced, showing very different responses to the same impacts in various parts of the world, in addition to diversity of impacts. Such maps might be one way to visualise collective progress, though further innovation is needed. Metrics applied at national or sub-national scale would allow monitoring of progress over time, which is arguably more important than comparing one country with another, particularly when considering progress over time will be imperative for actions to drive increasingly more ambitious climate resilient development pathways. National metrics would also assist in more shared understanding of contributions towards the GGA.

Process-related metrics as suggested by Klinsky, S. and X. Ngwadla (no date) ‘Quick Thoughts for Adaptation’ are another way to capture diversity and different needs and climate response approaches, which may be more appropriate than measuring success against concrete or fixed targets, as well as for tracking progress over time, and for learning to enhance implementation and ambition. Process-related metrics could also ensure the embracing of principles of good adaptation practice, for example climate justice, distributive effects and cost-efficiencies (GCA, 2021).

Relevance for the GST

The case of South Africa has demonstrated the gap between the international finance need for adaptation articulated and the finance provided for adaptation. The wide range in finance estimates is indicative of the challenge of defining the finance need for adaptation. The GST could play a key role here in collecting information on how finance needs for adaptation have been responded to (or

not), and determining what level and type of finance has been provided for adaptation. This type of assessment could help to identify where there are gaps in responding to needs identified so far.

The failure to track private sector financing of adaptation in South Africa raises the question, how can Articles 2.1c and 9 assist in addressing the disparity between mitigation and adaptation finance, and the gap between finance needs, and finance flows and provision? The assumption that both public and private finance in isolation will be insufficient to meet adaptation and resilience-building costs has led to calls for an increase in private finance, and raises the question of which activities are better supported by public or private finance. To our knowledge there is a lack of evidence on the consideration of trade-offs and implications of sources of funding and types of funding instruments in terms development (e.g. infrastructure) and financial (debt) path dependency and the longer term equity impacts. The GST might include requests for information that could support a qualitative assessment of impacts of private compared to public finance in charting climate resilient development pathways, that could inform the discussion of the roles of Articles 2.1c and 9 for funding for adaptation and mitigation in a more balanced manner.

How can the GST advance the work on adaptation metrics? Further work is required on adaptation metrics to assist with developing more granular representations of adaptation needs, and with tracking progress. Tracking progress is needed both nationally and subnationally, and metrics are most equipped to do this when they are tailored to the specificity of these contexts. It may well turn out to be that tracking progress over time in a country or city, may well be more realistic and valuable work for metrics than for comparing across countries. At the same time, could defining the global goal on adaptation (GGA) help with establishing greater clarity on metrics and what they are working towards? This could then filter down to provide guidance for national and subnational efforts. Further research on adaptation metrics is needed should countries and the global community aim to achieve parity of funding between adaptation and mitigation.

5.4. What metrics would be most useful to assess a country's adequate and equitable contribution towards the GGA? Insights from Indonesia

Defining and achieving the GGA will require countries to make adequate and equitable contributions to the goal. Metrics have a key role in defining the goal, tracking its progress, and enabling more efficient adaptation implementation globally and in countries. Indonesia has already begun work on adaptation metrics and their role in attracting finance for adaptation.

The first year of the adaptation study (2020-2021) provided an overview of adaptation metrics, governance, and funding in Indonesia. The findings suggested that Indonesia does not yet have scientifically developed metrics nor agreement between stakeholders for various purposes such as identification of adaptation needs, allocation of funding, and monitoring and evaluation. In addition, there is still a gap between the finance needed and the availability of funds for adaptation.

Several line ministries and sectors in Indonesia have been proactive in establishing adaptation assessment tools that could provide a basis for adaptation metrics. Table 1 illustrates adaptation

assessment tools that have been developed by different ministries that are included in policies or other formal government documents. These are listed below according to the chronological order in which they were developed and include the objective, scope, framework, and responsible ministry for each tool listed.

Table 2: Adaptation Assessment Tools Developed in Formal Documents in Indonesia

| Tools for Adaptation Assessment | Formal Document, Responsible Ministries | Objective | Scope | Framework |
|---|--|---|---|---|
| KRAPI /CCRAA (Climate Change Risk and Adaptation Assessment) | <ul style="list-style-type: none"> Indonesia Climate Change Sector Roadmap (ICCSR)⁴ was published by the Ministry of National Development Plan (MoNDP) in 2010. CCRAA was published by the Ministry of Environment and Forestry (MoEF) in 2012. | A guide for formulating adaptation actions at the national and local levels is needed to avoid multiple impacts of climate change through approaches, frameworks, and methodologies to assess vulnerability and adaptation capacity to climate change | Focus sectors of CCRAA are adaptation sectors which are also prioritized in the ICCSR include water resources, agriculture, health, and coastal areas. For the scope of the planning period, based on the results of the study in the three pilot areas, there are different implementation time targets for the adaptation strategies of each sector | Formulated based on analysis of scientific basis, hazard, vulnerability, and climate risk before developing adaptation options |
| SIDIK (Sistem Informasi Data Indeks Kerentanan/ Information System of Vulnerability Index Data) | <ul style="list-style-type: none"> Rencana Aksi Nasional – Perubahan Iklim (RAN-API)⁵ was published by MoNDP in 2014 SIDIK was published by MoEF in 2015 | It aims to provide information on climate vulnerability needed in development by the central and local governments in adaptation planning efforts and reduce the risks and impacts of climate change. SIDIK is used for supporting RAN-API | At the national, provincial, and district/city levels, the village is the smallest unit of analysis. Meanwhile, the substance scope focuses on measuring vulnerability using a 3-factor approach, i.e., exposure, sensitivity, adaptation capacity, biophysical and environmental conditions, infrastructure, and socio-economic conditions. | As the adaptation metrics by utilizing socio-economic, demographic, geographic, and infrastructure data from the Village Potential. |
| Climate Resilience Index | CRIDS (Preparation of CRIDS was carried out in 2018 and is under the responsibility of MoNDP, but this document has not been officially published) | Aimed to develop a climate resilience performance measurement as the foundation for scoping the new RAN API, monitoring and evaluation framework, and determining climate resilience baseline. | Focus on four sectors of climate resilience namely, water resources sector, ocean and coastal sector, agriculture sector, and health sector that represent four focus sectors of RAN-API | The resilience approach was chosen to measure the achievement of adaptation because this approach can provide a unified response to shock and to stressors associated with the ongoing exposure to risks that threaten well-being due to climate change and the threats that have become more difficult to predict. |

4 ICCSR is the roadmap for 20 years until 2030 that provide policy guidance and mainstream climate change tools in all aspects of development planning for considerations of the sectoral and cross-sectoral development programs.

5 RAN-API is a national action plan to adapt to the climate change impacts that is coordinated with all relevant stakeholders. Therefore, it is expected to be the main input and an integral part of the national development planning and line ministries' planning documents.

| Tools for Adaptation Assessment | Formal Document, Responsible Ministries | Objective | Scope | Framework |
|--|---|--|--|--|
| Gross Domestic Product (GDP) Potential Loss – NDC Adaptation Roadmap | NDC Adaptation Roadmap ⁶ was published by MoEF in 2020 | GPD Loss as a metric to monitor the achievement of Indonesia's NDC adaptation targets | Six priority sectors: food, water, energy, ecosystem services, disaster, environmental health, and human health. | The achievement target of reducing GDP loss has been calculated for the eight strategies in the roadmap. However, it is unclear how the measurement indicators and methods for calculating the contribution of the program output in each strategy to reducing the National GDP loss. |
| Gross Domestic Product (GDP) Potential Loss – PBI Documents | Climate Resilient Development (PBI ⁷) was published by MoNDP in 2021 | GPD Loss as a metric to monitor the achievement of climate resilience targets in the national development plan | Four priority sectors of the RAN API including, water, agriculture, marine, coastal, and health sectors. | The reduction in potential GDP losses in each priority sector is calculated from the achievement of the output indicators for each climate resilience action. The output indicator is built from assumptions that consider how the contribution of each action in increasing sector income and then reducing the potential loss of national GDP. |
| Climate Budget Tagging (CBT) Tools ⁸ | Public Finance for Climate Change ⁹ in Indonesia was published periodically every 2 years by the Fiscal Policy Agency of the Ministry of Finance (MoF) | CBT is a process to tag the programs or activities in a development plan related to climate change mitigation or adaptation to map climate change spending in the national development plan. | CBT is carried out by line ministries or sectors with programs or activities related to climate change mitigation or adaptation. | Follows the national planning and budgeting cycle: line ministries do self-assessment regarding programs that have outputs related to mitigation or adaptation by referring to the guidebook for tagging the climate change budget. To ensure the validity of the output, it was shared with the MoF, the MoNDP, and the MoEF. |

6 NDC Adaptation Roadmap is a guideline for related stakeholders with coordination under the MoEF, as the NFP from the UNFCCC for Indonesia, in implementing comprehensive adaptation programs and actions against NDC targets. The roadmap will be a reference in implementing NDC adaptation as long as Indonesia does not yet have a NAP (National Adaptation Plan). The roadmap is contained eight main strategies to achieve the NDC target for adaptation in 2020-2030.

7 PBI as a reference document for related parties in implementing the national priority 6 of National Medium-Term Development Plan (RPJMN) 2020-2024 related to climate resilience.

8 Climate Budget Tagging is actually not a tool for adaptation assessment, rather a tools for guiding decision-makers in identifying adaptation expenditures.

9 Public Finance for Climate Change is a report that contains the results of tagging the budget for climate change mitigation and adaptation in the RPJMN as a form of government responsibility in the transparency of climate change funding. The reports that GoI (Government of Indonesia) has published are in 2016-2018 and 2018-2020.

In summary, since 2012, the Indonesian government across various line ministries has been trying to develop assessment tools to establish adaptation metrics, as presented in the table above. However, each ministry uses different and unrelated approaches and methodologies to develop these metrics. In addition, until now, these various tools were not used for adaptation funding allocation or other matters related to adaptation finance.

The second column in Table 1, refers to the responsible Ministry, and thus key high level institutional capacity. Similar to the example of AIPA in India, this set of Ministries in Indonesia could be understood to be contributing to enhancing institutional capacity. With such an understanding, the tools used to meet Indonesia's objectives could be viewed as a contribution to Article 2.1 b – in the case of Indonesia, applied to adaptation and climate resilient development.

In terms of the tool of GDP potential loss, this metric could currently be identified as a national adaptation metric, although there is no specific consensus at the national level. This metric is separately used by MoEF and MoNDP in formal national documents due to different methodological bases and approaches and different sectoral focuses. This would appear to be a good test case for the country to attempt to harmonise the use of metric across two ministries.

MoNDP developed the GDP Loss as a metric to monitor the achievement of climate resilience actions in the PBI document. Every year, monitoring is carried out regularly through the Low Carbon Development Planning and Monitoring Application (AKSARA) system. MoNDP coordinates with line ministries to input the technical data needed to calculate the achievement of climate resilience action indicators in each sector into the AKSARA system. Through this technical data, the system will automatically calculate the achievement of reducing GDP losses as explained in the relevant framework column in Table 1.

Meanwhile, as a national focal point of UNFCCC for Indonesia, MoEF developed GDP Loss as a metric to measure the achievement of NDC Adaptation Roadmap targets. However, the roadmap has not yet explained how the calculation of program or action indicators reduces GDP losses. Therefore, so far, MoEF has not monitored the achievements of the roadmap. Thus, there are no results of monitoring the achievements of the NDC Adaptation in the National Registry System (SRN) built by the MoEF. So far, the SRN has only displayed the results of calculating CO₂ emission reductions from mitigation actions.

Relevant insights for the GST

Indonesia has developed various adaptation assessment tools and metrics for planning as well as monitoring and evaluation but has not yet linked them with the objectives of adaptation finance. To map the needs of adaptation finance and tracking of adaptation finance progress, the Government of Indonesia has only used the CBT approach to identify adaptation spending in the national development plan. Providing this clarity and communicating these roles to the GST could help strengthen the case for greater adaptation financing in Indonesia and help to inform the development of the GGA and the establishment of systems for tracking progress under the GGA. At the same time, linking a discussion about adaptation metrics with finance available through Articles 2.1c and 9, may help to incentivise the Indonesian government to extend the existing work on adaptation metrics to articulating and tracking adaptation finance needs. Another way in which the GST could play a role is to provide greater clarity

to countries like Indonesia about how best to contribute to the GGA, which could also help to advance work on adaptation metrics.

The finance gap is well understood, as shown in the literature review (section 2). It is critical that the GST discusses ways to bridge the finance gap. In addition to the insights on finance (section 6.1), it is proposed that funding needs be included in NAPs. Metrics for adaptation should include both adaptation and support, consistent with the previous section. Equity should be considered in relation to financing climate action, including increasing the abilities to develop along a climate resilient and low emissions pathways.

This section also suggests good practice in bringing loss and damage to the climate finance agenda, draw on GDP loss as a method used by the Indonesian government (KLHK) to quantify loss and damage.



Chapter six

Support

6. Support

Support includes finance, capacity building and technology. As mentioned at the start of this study, we do not aim to represent all elements uniformly but place emphasis on the research priorities of SNAPFI partners. As the project especially analyses policy and financial instruments, the focus of this section is on finance, with some treatment of capacity building. Technology is not covered.

6.1. Finance

The long term goal on finance is articulated in Articles 2.1c and 9.3. To recap, Article 2.1c aims to make financial flows consistent with low emissions and climate resilient development. Article 9.3 is a finance mobilisation goal for which developed countries should take the lead in mobilising climate finance, including public funds (Art 9.3) with a quantified “floor” of \$100 billion per year by 2020 with a process agreed in Paris and initiated in Glasgow, to set a higher mobilisation goal by developed countries, which would come into effect from 2025 (UNFCCC, 2015).

6.1.1. Demand: Finance needs of developing countries

Mobilization of climate finance should support country-driven strategies, and take into account the needs and priorities of developing country Parties (Art 9.3), requiring that developing countries both understand and communicate their needs well (especially those that are strategic or urgent).

What is needed for developing countries to better articulate their needs for climate finance, both mitigation and adaptation?

- Policy - coordination and alignment, coherence, clear policy signals
- National scale models, taxonomies
- Incorporating expert and stakeholder inputs.
- Understanding and articulating needs at the level of implementation.

6.1.2. Supply: Finance provided and mobilised by developed countries

In addition to the challenge of mobilising the scale of finance required, there are additional complexities for the supply of ICF. For example, are there climate actions that are not viable without international public climate finance? Are there pre-defined actions that may or may not obtain support? How can transformative climate actions be prioritised relative to least cost mitigation actions? Furthermore, framing mitigation as international and adaptation as national has contributed to the bias of support to mitigation. Framing adaptation as global issues could be a helpful contribution in overcoming this imbalance. These are some of the complexities confronting the supply of ICF.

There is a growing body of work exploring linkages in finance, linkages between demand and supply, and linkages between Articles 2.1c and 9.3. The following two sections explore some of these potential linkages and raise questions as to how the GST could capture and promote such linkages.

6.1.3. Enhancing clarity and building the linkages between Art 2.1c and 9

As discussed the Paris Agreement sets out two finance related goals which are independent yet complementary. Beyond the broad formulation of these goals, the Agreement or the UNFCCC process do not offer more detailed definitions and guidance in particular related to their scope, interdependence or ways to implement and account for them. This has resulted in different interpretations and approaches by different Parties and observers, and continued contested negotiations between developed and developing countries.

The scope of Article 9 is more narrowly defined relating to finance provision mandatory for developed countries and voluntary for others, with a focus on public funds, extending to other non-public sources in the call for enhanced mobilisation.

Arguably as a result of a narrower, more tangible definition including the quantified floor goal of US\$ 100 billion per annum by 2020, discussions on climate finance in the UNFCCC space have largely focused on Article 9. Key issues around the nature of the finance, in terms of level of concessionality, boundaries with ODA and questions of equity related to access and balance between regions, countries, mitigation and adaptation, as well as adequacy to meet developing country needs, remain highly contested, not least because important milestones have not been met. The failure to meet this goal was acknowledged in the Glasgow Climate Pact agreed on at COP 26 which “Notes with deep regret that the goal of developed country Parties to mobilize jointly USD 100 billion per year by 2020 in the context of meaningful mitigation actions and transparency on implementation has not yet been met” (UNFCCC, 2021. decision 1/CMA.3, paragraph 44).

In comparison, the scope of the Article 2.1c goal is much broader and offers a new perspective on climate finance as it extends beyond the Parties of the Agreement to the global financial system and economy as a whole, not differentiating between developed and developing countries (Zamaroli et al, 2021). This far-reaching interpretation which encompasses domestic as well as international public and private finance flows is echoed in the assessment of the UNFCCC’s Biennial Assessments by the Standing Committee on Finance (UNFCCC, 2020) and has spurred action among financial institutions seeking to align their investments with the goals of the Paris Agreement in recent years (see for example, Fuchs et al, 2021).

While the mobilisation and alignment goals are distinct and treated in largely different circles, they are overlapping and interrelated. The amount of finance needed to achieve the long-term goals of the Paris Agreement requires the scaling of investments by “several multiples of current levels” as well as coordination across public and private financial actors (CPI, 2021). Public climate finance provided under Article 9 can play an important role to support the achievement of Article 2.1c which in turn contributes to the broader mobilisation goal as a catalyst to drive non state action. Hence a better understanding on the linking of the two goals in practice can improve the effectiveness of finance provision and deployment. Agreement on the definition and ways of implementation of Articles 2.1c and Article 9 are essential to enable the tracking of progress and to enhance the delivery on the goals. Tracking as well as progress towards the achievement of the goals have been patchy at best.

Various processes under the UNFCCC, notably the UNFCCC Biennial Assessment and Overview of Climate Finance Flows, as well as outside, seek to track and assess progress towards achievement of the mobilisation goals enshrined in Article 9. Whilst some progress has been made towards achieving them, in particular more recently during 2021 (OECD, 2021), the provision of international climate finance falls short of what has been agreed and even more so of what is needed in the context of long-term mitigation and adaptation goals. In recognition of this shortfall, the COP26 presidency initiated the development of a “climate finance Delivery Plan” which sets out how and when, developed countries meet the USD 100 billion per annum. In response several developed countries committed to increased climate finance suggesting that from 2023 to 2025 the goal will be met. When comparing the mobilisation goal of USD 100 billion to results of a global analysis on what will be needed to limit global temperature increase to 1.5°C alone, the significant finance and investment gap becomes evident.

Many observers and developing country representatives criticise not only the finance gap but also the above-mentioned imbalances, particularly between adaptation and mitigation finance, and associated equity concerns, as well as the lack of transparency and agreement on definitions and indicators. Some argue that the different interpretations of what counts as climate finance make it impossible to determine whether the mobilisation goals are achieved (Roberts et al., 2021). These differing interpretations illustrate the pressing need to establish some level of consensus so that progress can be tracked and performance improved.

The Organisation for Economic Cooperation and Development (OECD) has provided its assessment of climate finance provided by its member countries. The OECD's 2021 report updated information to 2019, and “in 2019, total climate finance provided and mobilised by developed countries for developing countries was USD 79.6 billion in 2019, an increase of 2% from 2018. A more than USD 20 billion annual jump would, therefore, be required to meet the USD 100 billion goal for 2020.” In the OECD's assessment, there was greater increase between 2018 and 2019 in multilateral public climate finance (15%), a little in public climate finance increased (2%), and a drop in bilateral public climate finance (-10%)(OECD 2021).

The Oxfam report on climate finance for 2020, by contrast, found that, while reported public finance had increased from 2015-16 to 2017-18, “a closer look reveals that donor reports continue to overstate climate finance by a huge margin.” Oxfam makes clear this is due to issue such as counting the full face value of loans (not their concessional percentage, or absolute amounts), and counting development finance as climate finance. “Taking account of these issues, Oxfam estimates that public climate specific net assistance is much lower than reported figures, increasing slightly from \$15-19.5bn per year in 2015-16, to \$19-22.5bn per year in 2017-18.” (Carter, Kolwazig and Zagema, 2020). Grants increased from \$11 bn to \$12.5 bn over the same period, so have “barely changed” (ibid). Clearly estimates vary considerably, depending on how they are assessed and which estimates are most accurate or contested.

Whilst some efforts have been made to track progress towards the achievement of Article 9 the tracking of progress of Article 2.1c has received less attention, in particular under the UNFCCC. It was only in 2020 that the Standing Committee on Finance embarked on covering the question of alignment of financial flows by providing a high level overview, mainly focussing on public finance. The report of the Committee generally notes a need to undertake more work “to build a common understanding of Article 2.1c” (UNFCCC, 2020). The tracking of progress faces challenges related to the lack of

definition, difficulty in attribution and comparability in the absence of any agreed indicators. A major methodological challenge relates to the nature of the goal which needs forward looking metrics to assess alignment with future scenarios. Data availability as well as access challenges given the scope of Article 2.1. to actors outside the UNFCCC realm compound these difficulties.

Several initiatives have started to develop methodologies to track progress of alignment of financial flows, including initiatives led by governments (including, for example, Switzerland, Austria, Sweden, Peru, amongst others), supervisory authorities or central banks (such the New York State Department of Financial Services) and the private sector through industry associations (for example Asofiducarias, the Colombian Fund Association). However, the data is patchy as coverage only includes certain countries, a proportion of finance institutions and asset classes as well as climate relevant sectors (Thomae, 2021). Generally, methods on assessing finance alignment with the mitigation goals is further advanced than for example adaptation, however, even here common metrics are lacking and difficult to agree on.

Relevance for the GST

The global stocktake is an important process to advance on common definitions and the development of metrics and approaches to enable the tracking of progress towards both Articles 9 and 2.1c to inform their effective implementation. It can be used to highlight critical data gaps and areas of future work in this regard. However, **information differs quite significantly, with even the totals of climate finance provided and mobilised differing depending on accounting rules applied.**

The GST can make an important contribution and provide essential insights into the questions of climate finance to improve progress on the existing finance goals, inform forthcoming finance goals (from 2025) under the UNFCCC and improve the effectiveness, balance and equity of finance provision. Improved transparency and understanding of the status of progress and implementation practices is important to build trust in the multilateral process. More importantly the effective and sufficient mobilisation of additional finance and redirection of existing flows is a prerequisite for achieving the overarching climate and development goals of the Paris Agreement. The GST is particularly relevant for Article 2.1c as it is currently the only place where the question of alignment of finance flows is seriously considered under the UNFCCC (iGST, 2021).

A detailed and precise set of guiding questions can help to systematically map available information, highlight gaps and critical areas where more research will be necessary. Initiatives such as the independent Global Stocktake (iGST) provide useful insights in this regard (Höhne et al, 2019; Watson et al, 2021). More so than perhaps in other areas of the GST, the availability and access to data as well as willingness to share is likely to be a major barrier for finance related topics. Information needed to assess the overarching questions of the GST of “where are we? where do we need to be? how do we get there?” is to date inconsistent, contradictory or not available at all (Höhne et al, 2019).

To advance on the definition and operationalisation of Articles 9 and 2.1c, important questions for the GST include scope and sources in the sense of what counts as climate finance and whose responsibility it is (Article 9), as well as the reach of Article 2.1c and how this links to the mobilisation goal under Article 9. Agreement on common indicators, boundaries and metrics is imperative.

Suitable approaches and metrics related to the status and progress towards the mobilisation goal of US\$100 billion per annum are comparatively well understood but need common agreement to ensure consistency. What is less well understood is the question of sufficiency of finance and how this can be measured, also ensuring a balanced allocation of resources. A better understanding of finance needs of developing countries in relation to the long term goals of the Paris Agreement and needs of developing countries, building further on the first NDR report (SCF 2021). Effective delivery mechanisms and instruments are required to bridge the overall finance gap and could be a focus of GST to improve performance. Here metrics have two critical roles to play, namely articulating finance needs, and tracking progress in terms of finance provided or received.

One of the most important methodological gaps concerns the question of alignment of finance flows in the broader sense and how this can be measured considering in particular the need to access data from non-Party stakeholders and the challenges associated with forward looking metrics and scenarios. This is central for Article 2.1c but also relevant for Article 9 in order to be able to assess the consistency of mobilised finance with the Paris Agreement goals and its key principles.

The complexity of the questions posed, far exceeds the scope of the GST, but the GST could play a role by contributing to achieving a common understanding of the challenges, to raise awareness and to comprehensively capture approaches and methods. This would enable an informed discussion to foster more agreement on the topic within the GST and beyond. Overcoming the accounting challenges is necessary, but on its own, not sufficient.

The GST should take a further step, understanding how finance can be provided, mobilised and made consistent with CRD and LEDS. In other words, how to address both 2.1c and 9. Drawing on the sections above, we propose that funding specific actions that shift a country along a low emissions development pathways (which it would itself have defined), is a concrete way. For adaptation, the funding required may be somewhat different, but the overall intention the same, to fund concrete actions that contribute towards achieving climate resilient development pathways.

6.1.4. A registry of demand and supply for climate finance – Lessons learned from the NAMA registry for the global stocktake

Background on GST and NAMA registry

The GST aims to inform countries' efforts raise ambition of climate action and enhance international cooperation. The NDCs are a central element to this and related reporting will be done through Biennial Reports (BRs) and Biennial Update Reports (BURs), later biennial transparency reports (from 2024) amongst other documents from Parties and non-state actors. One component of these reports is financial support, technology development and transfer and capacity building (FTC). Different reporting requirements for developing and developed countries are included in Table 3.

Table 3: Information contained on support needed, received and provided in the biennial reports (BRs) and the biennial update reports (BURs)

| BRs for developed countries | BURs for developing countries |
|--|---|
| <p>Required to report on finance, technology and capacity-building (FTC) support provided and mobilized for developing countries Parties</p> <ul style="list-style-type: none"> • Information on financial support provided and mobilized • Information to be reported on technology development and transfer support provided • Information to be reported on capacity-building support provided | <p>Information on FTC support needed and received</p> <ul style="list-style-type: none"> • Information to be reported on financial support needed and received • Information to be reported on technology development and transfer support needed and received • Information to be reported on capacity-building support needed and received |

In order to understand how the flow of finance can be enhanced through reporting systems as outlined in Table 2 above¹⁰, we examine a predecessor of the international process under the UNFCCC, in which specifically potential funders and recipient countries registered documents of demand for and supply of climate finance. This predecessor is the NAMA registry and by reviewing the literature on effectiveness of the NAMA registry to link up demand and supply of climate finance, we come up with recommendations, how the GST could contribute to strengthening these linkages to improve flows of finance. The recommendations are particularly given for the reporting of finance flows according to article 9 of the Paris Agreement, but less so for article 2.1c. This is because the objective of the NAMA registry was to catalyse finance and support flows, but not to aim at generally redirecting financial flows towards climate objectives.

The NAMA registry is “a publicly available online platform, managed by the UNFCCC secretariat, which expedites implementation of nationally appropriate mitigation actions (NAMAs) to reduce greenhouse gas emissions in developing countries” (UNFCCC, 2015: 1). The decision to design a registry was made during COP 16 in order to record NAMAs seeking international support, recognize other NAMAs and facilitate the matching of finance, technology and capacity-building support with NAMAs. The latter purpose is enabled by providing Annex I Parties and Organizations a mechanism to publicly announce their available resources. After COP 17 in 2011, the registry was designed as a dynamic, web-based platform (UNFCCC, 2014). Types of financial support recognized by the NAMA registry include grants, loans, guarantees, equity, foreign direct investments and carbon finance.

At the time of writing (April 2022), the NAMA registry contained 75 NAMAs seeking support for preparation from 26 countries, 98 NAMAs seeking support for implementation from 40 countries and 18 NAMAs for recognition from 12 countries – in total, 52 countries made inputs to the NAMA registry. Out of 173 NAMAs seeking support, 18 NAMAs submitted by 15 countries have actually received support from 7 different donors. Table 4 provides information on support needs for NAMAs (i.e., the demand side), while subsequent table 4 shows the actually supported NAMAs with a total of \$ 37.7 million provided by the main contributors (i.e., the supply side).

¹⁰ Important is to note that the reporting system shown in table 2 is not directly linked to the NANA registry, but provided for illustrative purposes only.

Table 4: Needs stated in 18 NAMAs (source: NAMA registry)

| Number | Origin of demand | Total support needed (millions of USD, as in NAMA) / received (USD; %) |
|--------|----------------------------------|---|
| 1. | Colombia | 19,016 / 18,5 ; 97,3% |
| 2. | Thailand | 0,142 / 0,121 ; 84,9% |
| 3. | Azerbaijan | 0,100 / 0,100 ; 100% |
| 4. | Kazakhstan | 0,15 / 5,930 ; 3953,3% |
| 5. | Sudan | 0,5 / 3,5 ; 700% |
| 6. | Tunisia | 915,783 / 3,6 ; 0,4% |
| 7. | Sri Lanka | 1,79 / 1,790 ; 100% |
| 8. | Georgia | 1,941 / 1,941 ; 100% |
| 9. | Vanuatu | 5,8 / 1; 17,2% |
| 10. | Serbia | 7,761 / 0,960; 12,4% |
| 11. | | 274,256 / 0; 0% |
| 12. | | 1,358 / 0; 0% |
| 13. | Namibia | 0,07 / 0,07; 100% |
| 14. | Gambia | 0,06 / 0,06 ; 100% |
| 15. | Lao People's Democratic Republic | 0,07 / 0,0 ; 100% |
| 16. | Vanuatu | 0,07 / 0,081 ; 115,7% |
| 17. | Uruguay | 0,750 / 0; 0% |
| 18. | Costa Rica | no info / 0; 0% |

Table 5: Support provided by 15 donors, for supported NAMAs (USD millions)

| Total demand (USD) / total supply (USD) | Total support provided (USD) / % from all supply | Number of NAMAs supported | Origin of supply |
|---|--|---------------------------------|---|
| 1230 / 37,722 | 18,621 / 49,4% | 2 | NAMA Facility |
| | 14,920 / 39,6% | 5 | Global Environment Facility (GEF) Trust Fund |
| | 2,941 / 7,8% | 2 | Austria (Ministry of Agriculture and Forestry, Environment and Water Management) |
| | 0,960 / 2.5% | 3 | Japan (Japan International Cooperation Agency) |
| | 0,281 / 0,7% | 4 | Australia (UNDP MDG Carbon – funded by AusAID) |
| | N.a. | 1 | Spain |
| | N.a. | 1 | Inter-American Development Bank (IDB) |

Most support (around 90%) was contributed by the NAMA Facility and Global Environment Facility Trust Fund, public-driven funding entities which aim to select the projects that help efficiently achieve local and global environmental benefits. The NAMA registry was meant to facilitate the matching of the available support with NAMAs by making the information transparent and publicly available, but several factors undermined the platform's performance, which will be analyzed in the next section.

The support for NAMAs is represented by 17 institutions, but only three of them explicitly stated the available finance – the rest provided the obligatory information on the source of support, the organization channeling the resources, qualitative data about the support, types of action that may be supported and the process of the provision of the support. As there is no mandate for neither donors nor support recipients to submit the supported NAMAs via the NAMA registry, there is little incentive for both sides to upload the information on the closed deals, the platform operator would need to disclose this data themselves to make the successful cases transparent.

To enhance the learning from the experience of the registry users and analysts and improve the effectiveness of the platform service, the quality and granularity of submitted data would need to be enhanced. This lack of granularity makes analysis and therefore learning difficult. 22 entries of supported NAMAs represent 18 unique disclosed cases, where all reveal the type of support, but only 14 disclosed the amount. In another example, only 3 out of 18 NAMAs for recognition provide partial data on sources and amount of support, where the quantification of the domestic climate finance would be of interest.

While there is a well-established body of research related to NAMAs as an example of a UNFCCC-based policy instrument, the NAMA registry received much less attention from the scientific community, even though it offers plausible lessons as a platform for matching climate finance supply and demand. Due to a shifting landscape in the international climate negotiation process, the introduction of iNDCs in the lead up to COP 21 as well as the Paris Agreement, the NAMAs lost attention of domestic and international policy actors not least of all because they were not anchored in an overarching agreement. Nonetheless, analysing the design of the NAMA registry could uncover valuable lessons to inform the GST process.

Assessing the effectiveness of the NAMA registry

Linner and Pahuja (2012) suggest five ways how finance supply and demand could be brought together in the case of the NAMAs: (1) Pledged funding from developed countries; (2) New additional funds for NAMAs; (3) Bilateral funding channeled through the UNFCCC mechanism; (4) Emissions trading revenues; (5) A combination of the four above. In addition, the researchers put additional emphasis on the design of the registry which “could offer a balancing ground for any agreement on a future climate regime”.

The most extensive NAMA registry analysis was performed by Lee et al. (2014), where the authors evaluated the main functions of the platform and outlined the main challenges while proposing suggestions on how to overcome them. Four main mechanisms of the NAMA registry were highlighted: (1) Information-sharing; (2) Matching; (3) Capacity-building; (4) Reporting.

The NAMA registry is used by developing countries to share information not only by filing NAMAs seeking support, but also displaying NAMAs for recognition. For donors this information can be useful

in assessing the efficiency and climate action progress of potential support recipients, who in turn can market their performance (EU, 2015¹¹). This creates incentives for stable flow of quality information from developing countries, which is shaped by NAMA templates.

The matching mechanism of the NAMA registry worked to a limited extent, as the level of detail is insufficient for potential donors and it is hard to differentiate whether the matching of climate finance provided and requested happened due to the registry or outside of it. In the latter case, the platform plays a role of disclosing agreements, which have been met via external channels of communication. Still, such a display of information on agreements already taken between donors and recipients is useful as a source of information for other agencies to follow such approaches, and as a facilitator of trust due to higher level of publicly available information.

But the effectiveness of the registry seems to be limited by institutional design: While the UNFCCC Secretariat played a capacity-building role by providing assistance in the design of NAMAs, the reporting function was not the primary function of the registry (UNFCCC, n.d). As submissions to the NAMA registry are not mandatory, the process of measurement, reporting and verification is not established via the platform – this mandate is connected to BRs and BURs. The voluntary character of information disclosure via the NAMA registry disincentivizes the participation of both supply and demand actors. Providing a mandate to submit the information or establishing other incentives could contribute to solving the issue of low actor involvement. Another way to ensure that relevant information is available in the registry would be the publication by the platform operator – who would need to search for the information in the BRs and BURs, and make sure that involved actors agree to publish the data.

Lee et al. (2014) identified several factors that hindered the effectiveness of NAMA registry: (1) Lack of participation both from donors and host countries; (2) Insufficient quality of information and ambiguity of the NAMA content; (3) Insufficient updating and technical issues.

Lack of participation could be explained by the insufficient interest from both sides: for host countries registering a NAMA requires transactional costs, while the prospects of receiving support are uncertain – out of 173 NAMA seeking support only 18 received the funding (NAMA Registry, 2022). From donors' perspectives, NAMAs are not specifically targeted or prioritized as the information requirements for support provision could differ.

NAMAs also typically do not provide enough information for funders to make a financial decision, and the quality of the provided information from host countries differs. This lack of clarity and specificity leads to uncertainties around the scope of NAMAs and hinder their effectiveness as an instrument for matching supply and demand of climate finance. Lastly, insufficient organizational maintenance of the NAMA registry results in long lead times. The time from initiating NAMA development to the uploading to the registry can take several weeks or months, causing some of the information to be outdated.

Given that the climate finance support disclosure via the NAMA registry is voluntary, it is difficult to assess the impact of the registry on matching of climate finance supply and demand. One would need

11 From http://publications.europa.eu/resource/cellar/3c25d99d-a941-11e5-b528-01aa75ed71a1.0001.01/DOC_1: p. 47: "From the perspective of developing countries, the Registry allows them to 'market' their actions (e.g. that a country is implementing mitigation actions in a specific sector) and highlights those in need of funding. From the perspective of potential donors the registry allows them to monitor how many such actions are proposed or ongoing, and, in principle, to observe progress over time (provided that entries are updated).

to collect the information on supported NAMAs outside of the registry by contacting relevant facilities, who represent the climate finance supply, and analyzing the BRs, which should disclose the support provided by developed countries. Either way, with some upgrades, the NAMA registry could be useful as a tool to provide more transparency on finance needed and provided, and to enable replication and sharing of lessons learned.

Relevance for the GST

What lessons could we take from the design and experience of the NAMA registry? Is it recommended to set up a similar registry for NDCs in the context of the GST? First, we suggest enhancements to overcome the three barriers, identified by Lee et al. (2014), and complement them by providing further suggestions which could be useful for the upcoming GST. We then briefly discuss whether it is recommended to institutionalize an NDC registry for the GST in an analogous way to the NAMA registry.

1. Attracting more donors and recipients through awareness raising Attracting more donors and recipients to the platform is crucial for enlisting new climate finance agreements, which should potentially create reinforcing feedback loops. One could expect that the more settlements are made visible on the platform, the more attractive the registry becomes for climate finance actors from both supply and demand that do not currently use the registry.

The growth of actors' involvement could be done by increasing awareness of the platform, especially via bilateral or multilateral communication with potential donors or recipients, who have not yet used the platform. These interactions could help identify the reasons for lack of involvement of individual actors, which could then become the next steps of platform development. Making the matching function explicit and including those types of information, which enhance the trust between contributors and seekers of support, could help to improve the attractiveness of a possible future registry, (such as details of the mitigation and adaptation actions to be funded). While the GST does not have a registry function such as the NAMA registry, it could play a role in promoting the collection of information from funders and recipient countries to inform the development of a potential future registry for matching the demand and supply of climate finance.

2. Improving reporting of information to the NAMA registry Considering the diversity of reporting metrics and types of information submitted to the NAMA registry, giving guidance on how to provide the information would be important to secure the efficiency of any potential future platform. The ambiguity of NAMA registry's content has hindered its efficacy as an information instrument, which is also true for the NDCs. Hence, standardizing data structures based on NDCs could be a solution for a potential climate finance matching registry.

3. Insufficient updating and technical issues are potentially the outcomes of the first two major issues, which had negative reinforcing effects on actors' participation and information quality. Addressing this issue should be the first step of improving the registry's performance. For a potential new platform this issue could be avoided by efficient maintenance, secured by technical and organizational structure of the platform. In case participants to the GST deem such a novel platform as useful, sufficient resources for maintenance and updates should be allocated. Only then can a platform fulfill expectations satisfactorily.

4. Matching climate finance supply and demand implies trusted communication between actors from both sides. Developing an efficient matching system of supply and demand implies creating sustainable channels for dialogue (Visscher et al., 2020). Facilitating the communication among climate finance actors could lead to enhanced cooperation and assist in producing common ideas and solutions, driven by the interests of both donors and recipients, which could be highlighted in the global climate cooperation agenda (e.g. during GST).
5. A platform with extensive data, submitted by donors and recipients, could provide useful insights for its users in the form of data-driven products (e.g. best practices, efficiency evaluations, filters). This would cut the time-intensive searching costs for climate finance providers, who can have different criteria for potential recipients' eligibility for support and give guidance for host countries.
6. Consider matching adaptation actions with support
7. Consider drawing on the NDC registry as a basis for matching support and action

Conclusions. In this section, we assessed performance of the NAMA registry with the specific objective to understand, if a similar type of registry could be useful as a catalyst for the GST and to foster financial flows under the Paris Agreement. Our conclusions should be read with the understanding that currently, no specific mandate exists for the GST Process to introduce such a registry for the NDCs. But parties may be well advised to consider improving the shortcomings of the NAMA registry, if they wish to introduce an analogous registry.

- While the NAMA registry had specific functions related to information sharing and documentation and matching finance demand and supply, a potential future registry of climate finance matching would need to incorporate the finance available through Article 9. For that to happen, the **platform might serve as a clearing house mechanism for reporting standards** and methods, and might give respective guidance on data submission for both support providers and recipients.
- Even if the objective of the GST does not include **establishing a registry for matching demand and supply for climate finance**, it is worth exploring such option: The NAMA registry experience has shown that level of availability and disclosure of information on actions and finance influences the degree of trust and accordingly, the number of agreements taken. This could be addressed by for instance, improving the metrics of mitigation and adaptation finance and donors and recipient countries transparently reporting on them. A continuous theme throughout this paper has been the need to improve metrics and information available to track progress towards goals and ultimately contribute to climate resilient development pathways. The experience of the NAMA registry has useful lessons from which to learn in this regard.
- The advantage of a registry of demand and supply of climate finance under the GST process would be that a technical solution could be created to institutionalize reporting of the various elements of the NDCs, continuously strive for improvement of reporting by providing feedback to reporting entities.
- In the light of already existing funding entities such as the Green Climate Fund and other multilateral funding structures, the added value of a matchmaking function of a potential

registry of demand and supply for climate finance is likely only marginal. This was also the experience of the NAMA registry, and such a function could not be recommended. However, as an institutionalized, GST process accompanying registry, which continuously aims at improving reporting of climate finance demand and supply data, a registry would likely contribute to strengthening the Paris Agreement implementation process. Such a registry could build on the existing reporting instruments such as BUR / BTR and national communications but perform more of a service function to the UNFCCC process by working on key metrics, data and information needed for the GST.

6.2. Capacity

Article 2.1 b is perhaps the least often cited goal of the Paris Agreement. This is somewhat surprising, as the goal elaborates the purpose: “Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production” (UNFCCC 2015b; Article 2.1 b). Article 2.1b illustrates that capacity is foundational to any action. Ability also requires technology and finance.

Sokona (2021) proposes four key elements that are central to build capacity for development. (1) the will and ability to create and pursue long-term development narratives; (2) problem-solving institutions; (3) resources; (4) navigating short- and long-term needs (Sokona 2021). Sokona’s reflections raise some pertinent questions.

- How could capacity be reconceived, so that developing countries develop their own narratives of development and climate?
- How can the international community support the strengthening of existing institutional capacity in developing countries? And building of skilled human capacity, to work within institutions?

The following section discusses experiences in Brazil of developing taxonomies and other methodologies for tracking climate finance. At the heart of these reflections is the need to build capacity for implementing robust tracking methodologies.

6.2.1. Developing capacity and methodologies to monitor climate finance – Reflections from Brazil

In order to inform the formulation of future NDCs and to close existing climate financing gaps, the Global Stocktake could contribute to take stock of and promote discussions on methodologies, indicators and metrics that track financial flows towards the achievement of Article 2.1c, particularly of domestic climate flows. As discussed, whilst more efforts have been put in monitoring progress of Article 9, less attention have been put on Article 2.1c., so too is this the case in Brazil. The country’s BURs to the UNFCCC disclose international climate finance received from multilateral and bilateral organisations (Article 9). On the other hand, there is not a unified methodology to track progress of aligning finance flows with the Paris Agreement goals in Brazil, with various local initiatives employing

different approaches, methodologies and metrics. This section provides a brief analysis of how Brazilian public and private entities track and report climate-related international, public and private finance in the country. It also provides suggestions on how international cooperation could contribute to enhance these monitoring mechanisms.

International climate finance received

In Brazil's BURs to the UNFCCC, the government monitors the amount of external financing from multilateral and bilateral organisations that contributes to climate change mitigation and adaptation, thereby tracking progress of Article 9. According to the Fourth BUR of Brazil (Ministry of Foreign Affairs & Ministry of Science Technology & Innovation, 2020), the contributions to Brazil in 2018-2019 totalled approximately US\$ 1.874 billion, primarily through loans (Table 5) to mitigation projects (Table 4). In collecting data, information retrieved from multilateral institutions was found to be more complete and transparent in comparison with data from bilateral organisations, which is why data on multilateral flows is more comprehensive.

Table 5: Support received by the Brazilian government in 2018 and 2019, according to climate change goal (in US\$ million)

| | Multilateral channels | | Bilateral channels | |
|---------------|-----------------------|------------------|--------------------|-----------------|
| Year | 2018 | 2019 | 2018 | 2019 |
| Mitigation | \$ 661.86 | \$ 586.19 | \$ 88.30 | \$ 10.24 |
| Adaptation | \$ 34.43 | \$ 4.54 | \$ - | \$ 1.07 |
| Cross-cutting | \$ 191.44 | \$ 294.08 | \$ - | \$ 1.06 |
| Other | \$ - | \$ 0.52 | \$ - | \$ - |
| Total | \$ 887.72 | \$ 885.33 | \$ 88.76 | \$ 12.37 |

Source: Ministry of Foreign Affairs & Ministry of Science Technology & Innovation (2020)

Table 6: Support received by the Brazilian government in 2018 and 2019, according to financial instrument (in US\$ million)

| | Multilateral channels | | Bilateral channels | |
|-------------------------------|-----------------------|------------------|--------------------|-----------------|
| Year | 2018 | 2019 | 2018 | 2019 |
| Loan | \$ 835.71 | \$ 759.66 | \$ - | \$ - |
| Grant | \$ 51.39 | \$ 96.97 | \$ - | \$ - |
| Grant - technical cooperation | \$ 0.63 | \$ 24.70 | \$ - | \$ 2.13 |
| Grant - results-based payment | \$ - | \$ - | \$ 88.76 | \$ 10.24 |
| Equity | \$ - | \$ 4.00 | \$ - | \$ - |
| Total | \$ 887.72 | \$ 885.33 | \$ 88.76 | \$ 12.37 |

Source: Ministry of Foreign Affairs & Ministry of Science Technology & Innovation (2020)

Brazil's 2020 NDC states that, from 2021, Brazil will require at least US\$ 10 billion per year to address climate-related challenges (Government of Brazil, 2020). Hence, international climate finance will need to be increased in order to address this financing gap.

Private finance

As for tracking progress towards Article 2.1.c, especially domestic climate finance, there are different monitoring initiatives and green taxonomies in Brazil, but, overall, they do not allow for a comprehensive analysis of the extent to which domestic private financial flows are aligned with climate change goals. We present the main initiatives below.

a) FEBRABAN's green taxonomy – capacity to define climate finance

In 2014, the Brazilian Federation of Banks (FEBRABAN) created the first green taxonomy in Brazil, measuring the amount of bank financing that was allocated to sectors of the green economy (according to UNEP's classification). The taxonomy also measured the volume of bank financing that was allocated to sectors that could potentially bring about socioenvironmental impacts such as activities and organisations that require environmental licensing to operate, according to Resolution CONAMA No 237/1997 (FGVces, 2014).

In 2020, the taxonomy methodology was updated to be more aligned with international standards and taxonomies. The current taxonomy has three classifications:

- **Exposure to environmental risk:** Activities and organisations considered to have high exposure to environmental risk are those listed at Resolution CONAMA No 237/1997..
- **Green economy:** Activities are classified as having high or moderate environmental contribution according to how they are classified in the Taxonomy of the Climate Bonds Initiative (CBI), the EU Taxonomy for climate mitigation and Resolution CONAMA No 237/1997. Activities are classified as having high or moderate social contribution according to the Social Bond Principles and to Resolution CONAMA No 237/1997.
- **Exposure to climate risk:** Those activities considered to have high climate change exposure are the 18 sectors identified by the Taskforce on Climate-related Financial Disclosures (TCFD) (SITAWI, 2021).

b) ANBIMA's classification of investment funds – capacity to classify investments

The Brazilian Capital Markets Association (ANBIMA) monitors the amount of assets under management from all Brazilian investment funds, including "sustainability/governance" funds. To avoid greenwashing and ensure a more robust classification, in December 2021, ANBIMA released updated rules for "sustainable" equity and fixed income funds, stating that (i) their portfolios must be aligned with their stated ESG (environmental, social and governance) objectives; (ii) the fund's ESG policies, methodology and data must be publicly available; and if the fund tracks an index, the index must be aligned with the fund's ESG objective.

The asset managers responsible for these funds will also have to comply with the following requirements: (i) adopt an ESG integration policy; (ii) maintain a governance structure dedicated to ESG issues; and (iii) publicly disclose updated information on their policy and governance.

Funds complying with the criteria will be able to register as sustainable investments funds from January 3rd 2022. Funds that are currently classified as sustainability/governance funds will have a 12-month period to adapt (ANBIMA, 2021a, 2021b).

c) Database of green, social and sustainability-linked bonds issued by Brazilian companies

Brazilian consulting firm SITAWI has created a database listing the green, social and sustainability-linked bonds that have been issued by Brazilian companies and institutions. The database is available at¹²:

Although these three initiatives are useful in advancing tracking of green private finance, they do not allow for tracking progress of domestic private finance that is aligned with climate change goals. FEBRABAN's taxonomy monitors loans that offer an environmental contribution and that are exposed to climate risks, but not finance that is aligned with the goals of the Paris Agreement. The methodology from ANBIMA does not track use of proceeds of investment funds. Lastly, SITAWI's database lists green, social and sustainability bonds, but does not analyse total use of proceeds. Thus the Brazilian case illustrates how fewer efforts have been put in tracking the progress of Article 2.1c, with local initiatives presenting different monitoring goals and not focusing specifically on finance for climate change mitigation and adaptation.

Public finance

The Brazilian government does not monitor all public resources that are aligned with the goals of the Paris Agreement, but there are a few monitoring initiatives. The Low-Carbon Agriculture Observatory, an initiative from Fundação Getulio Vargas, has monitored, between the crop seasons of 2013/2014 and 2018/2019. The Low-Carbon Agriculture Program (Programa ABC), a governmental program makes available credit lines at low interest rates to fund low-carbon agriculture techniques, such as recovery of degraded pastures and implementation of agroforestry systems. Even though the Program has been updated for the period between 2020 and 2030 (now ABC+, available at¹³, the Low-Carbon Agriculture Observatory is no longer active and the publications are available at¹⁴).

Another example of monitoring of public resources for climate goals are the reports issued about the National Fund on Climate Change, a financial instrument from the National Policy on Climate Change that finances projects, studies and organisations that seek to reduce GHG emissions and promote climate change adaptation. The reports are available at¹⁵.

Similar to its international initiative on the Global Landscape of Climate Finance, the Climate Policy Initiative (CPI) in Brazil has recently started mapping climate finance in Brazil, starting with the agriculture, forestry and land use sector. It will include flows related to rural credit, credit lines and Brazilian Development Bank's (BNDES) financial mechanisms, thematic bonds and international donations (Coser, 2021).

The different initiatives that track public finance to climate change goals do not cover the entire public budget, either having a particular sectoral focus (e.g. Low-Carbon Agriculture Program) or analysing the disbursements of a single financial instrument (e.g. reports from the Climate Fund). Again, there

12 https://docs.google.com/spreadsheets/u/1/d/e/2PACX-IvRDp7Z82Qovj9VuupGGQGSiBi66hQPdRL5ucb6kZ80HyjtQtVjtf7Qekh99_DVs2FRG-8ADHE05ASP/pubhtml.

13 <https://www.gov.br/agricultura/pt-br/assuntos/sustentabilidade/plano-abc/arquivo-publicacoes-plano-abc/abc-english.pdf/view>),

14 <http://observatorioabc.com.br/publicacoes/>

15 <https://www.gov.br/mma/pt-br/acao-a-informacao/apoio-a-projetos/fundo-nacional-sobre-mudanca-do-clima/relatorios-de-execucao>

is a need to have a more comprehensive methodology that can monitor all public funds that are channelled to the goals of the Paris Agreement, a discussion to which the GST could contribute.

Relevance for the GST

Brazil's work on green taxonomies, classification of investment funds and monitoring of green, social and sustainability-linked bonds provide useful examples of how the country is attempting to enhance tracking of private and public finance for climate and societal-related targets. The data and insights from these classifications could provide useful material for improving the tracking of progress of alignment of financial flows with the goals of the Paris Agreement and track the progress of the provision of domestic climate finance, in line with Article 2.1c.

To track and assess global collective progress to the Paris Agreement, it is necessary that **all countries follow similar, comparable methodologies**. In the case of Brazil, the methodologies used have many local particularities, for instance, using as basis for classifying environmental risk exposure a national environmental licensing law. While it may be better suited for the peculiarities of the country, it is challenging to use this data to compare and track overall global progress against the NDCs. Under transparency, common tabular formats were agreed in Glasgow – including finance provided and mobilised, and needed and received. The GST could add value by providing guidance to countries about how best to collect information and utilise these tables.

The Brazilian experience also showed that there are limitations in how frequent climate finance flows are monitored, especially in the public sector. This causes challenges with information becoming outdated. In order for progress assessments such as the GST to be accurate, both developed and developing countries will need to play a key role of providing up to date information. This may mean increasing the frequency of monitoring and reporting or aligning monitoring and report cycles with the GST cycles so that the most recent information is made available to the GST processes.

International climate finance could support developing countries such as Brazil in producing better data to feed into this and future Global Stocktakes, for instance, by:

- Promoting discussions and guidance in-country and in the international arena about how to standardise methodologies to analyse the state of climate finance flows whilst also taking account of local particularities: Having common climate-related definitions and methodologies would contribute to institutionalise the practice in developing countries and track collective progress to climate commitments, particularly in relation to Article 2.1c.
- Providing technical assistance, for example, through helping developing countries to implement tracking methodologies and quantifying climate finance gaps, needs and targets. For instance, in Brazil, the US\$ 10 billion that is required according to the country's NDC is not divided according to sector or economic activity. A comparison between gaps and financial flows would help to assess whether international climate finance strategies are being effective.

These recommendations illustrate an important link between the finance and capacity goals of the Paris Agreement. If tracking progress is to be made on Article 2.1c and 9, serious investments in capacity will be needed. It should be up to each country to define what types of capacity are their priorities and what the best forms of capacity building initiatives are for their country to further this aim.



Chapter seven

Key messages for the GST

7. Key messages for the GST

This report has sought to answer the questions: How do we understand progress on mitigation and adaptation actions in five countries? How might such actions enable countries to shift to pathways to more sustainable development and how can such shifts be supported by consistent finance flows (Art 2.1c) and provision of finance (Art 9)? What might be the role of the global stocktake in strengthening national action and international cooperation?

In service of the research objectives, this research crafted a framing related to adaptation and mitigation actions, pathways and Articles 2.1c and 9 with the aim of enhancing the articulation of finance needs, the scale of finance provided and the impact of climate finance, as well as tracking progress. The study has adopted a bottom up approach to explore adaptation and mitigation progress in countries and how these actions could contribute to a shift in pathways. This, as a way of illustrating where we need to go and how we might get there, and importantly how financing concrete activities through Articles 2.1c and 9 could be a way of strengthening the linkages between these articles to enhance collective progress toward the long-term goals and objectives of the Paris Agreement. Innovative finance is needed for inclusive, equitable climate resilient and low emissions development pathways.

A review of the literature on international climate finance revealed that despite significant increases in climate finance over the last decade, there remains a large shortfall between the provision of ICF and the financing needs of developing countries. If the funding needs of developing countries are to be met in the future, an expanded role for both the public and private sector in ICF provision will be necessary. Historical ICF provision has been driven primarily by the need to reduce emissions, which has meant limited finance has been allocated towards adaptation and loss and damage. The literature review highlighted two key enabling factors for enhancing ICF. The first being international cooperation, which has the potential to de-risk investments, ensure that financing needs are better articulated, and align incentives between stakeholders. The second enabling factor identified was the need for standardised reporting metrics and targets to ensure more efficient and equitable delivery of ICF. Equity requires a balance between funding of mitigation and adaptation, and addressing loss and damage. A registry of demand and supply of climate finance might be considered in the GST. Technical discussions in the GST could draw on experience of matching action and support, while also relating this to the NDC registries for both adaptation and mitigation.

The findings of the literature review were corroborated by the findings of the country studies and SNAPFI partner inputs. Metrics for adaptation and finance for adaptation emerged as a key priority. This included the need to develop more shared understanding of the GGA which may help to guide the development of more appropriate adaptation metrics, as a way to clearly communicate the adaptation finance needs, tracking of progress on the goals and finance attracted. Metrics could also assist with equitably channelling finance through Art 2.1c and 9 towards adaptation, addressing the disproportionate allocation of finance to mitigation when compared to adaptation. Given the lack of private finance dedicated to adaptation, work on adaptation metrics could help to tease out which adaptation actions are better supported by public finance and where there is a case for private finance. Metrics for adaptation are complex, and qualitative approaches should be considered in the

GST, while quantitative metrics might not ‘aggregate’ in the same way as tons in mitigation or Euros in finance. It is clear that there are a variety of metrics to consider, making comparison between countries challenging. Adaptation metrics to assess progress of action and support over time and process metrics, were some of the innovations that were highlighted that are emerging from the work on adaptation metrics. This could be more feasible and indeed valuable than searching for adaptation metrics that enable comparison between countries. It is clear that countries are dedicating an increasing level of effort into adaptation metrics. Despite this increasing effort, there remains a lack of coordination in approaches and methodologies between ministries. As shown in Indonesia examples of common metrics are emerging that could be used as test cases for harmonising work on adaptation metrics undertaken in different ministries. A key future area of work will be the need to align this work and to strengthen its connection to adaptation finance and the need to mobilise more of it. Part of this could be to demonstrate how current adaptation actions, together could contribute to longer term pathways, and how illustrating pathways can strengthen the case for attracting adaptation finance. The GST could assist by collecting information on adaptation to assess which adaptation actions have been successful at attracting finance, and the level and type of finance attracted which could help to improve future prospects of adaptation actions attracting the necessary finance. Such work by the GST could also help to shine a light on the value of countries developing metrics for adaptation, tracking progress and harmonising approaches for attracting adaptation finance. It is at the same time worth noting, transparency under Article 13, and technical expert review (TER) is mandatory only for mitigation, and finance provided and mobilised. At COP26 in Glasgow an option was created to include adaptation information in TER, but this was voluntary. While the GST will likely play numerous roles it is also worth keeping in mind the detailed work that is happening such as under transparency and that therefore may not be the best place for the GST to direct its efforts.

On mitigation, with the increasing attention on 1.5°C and the push for net zero emissions, a possible tension has emerged, prioritising long term goals over near term action or vice versa. This study found a disconnect between LT-LEDS and NDCs, as illustrated by the case of India but also found elsewhere. It may be useful to think of LT-LEDS providing a long-term perspective on near-term action articulated in the NDCs, and as an opportunity to translate goals into pathways that can be used to crowd in finance through Articles 2.1c and 9. Promoting alignment to ensure near term action puts countries and the world on net zero compatible long term trajectories needs to be a priority, given the critical juncture the world finds itself at. The GST in its efforts to take stock of progress, could seek to understand reasons for the disconnect between near and long term action and discuss just transitions to net zero emissions.

Underpinning the efforts to enhance finance and international cooperation for adaptation, mitigation and sustainable development is the need to build a diverse range of capacities, underlining the importance of the often-overlooked ability goal outlined by Article 2.1b. Such capacities will be needed for articulating support needs, developing metrics and using metrics to track progress all important parts of making sure finance is better able to support adaptation, mitigation and sustainable development. Brazil’s work on taxonomies, classifications and tracking demonstrated that currently Article 9 is better covered, whereas there is limited information available for tracking progress of Article 2.1c. Furthermore, experience in the private sector and public sector have generated useful data and learnings that could inform future work on tracking progress of both articles. Building institutional capacity is another part of the capacity challenge requiring support to enhance coordination and effectiveness. Given that capacity underpins progress on everything else, as part of

its work to assess implementation, the GST should seek to characterise the capacity challenge in a granular way to identify specific capacities that should be treated as priorities moving forward and to highlight examples of progress.

Research at the country level shed important insights on the GST, namely the relevance of the GST for countries and the status of preparations for countries to participate in the GST. It was notable that none of the countries have initiated preparations for the GST and at this point in time, the purpose of the GST and countries' participation in it remains unclear for their countries represented in this study.

Lastly, it is clear that much work needs to be done to strengthen linkages, linking Article 2.1c and 9, linking demand and supply and learning from past experience to establish clarity, build capacity and unlock progress in the constantly shifting terrain of the 2020s. While it is important to remain realistic about the roles the GST can and cannot play, it also important to recognise that the shape of this, the first GST is likely to influence the shape of subsequent GSTs and therefore contemplating design features at this moment in time is vital. Irrespective of design, collecting information, discussing difficult issues and building trust are likely to be key ingredients of the GST to contribute to enhancing the role of climate finance and international cooperation.



Chapter eight

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