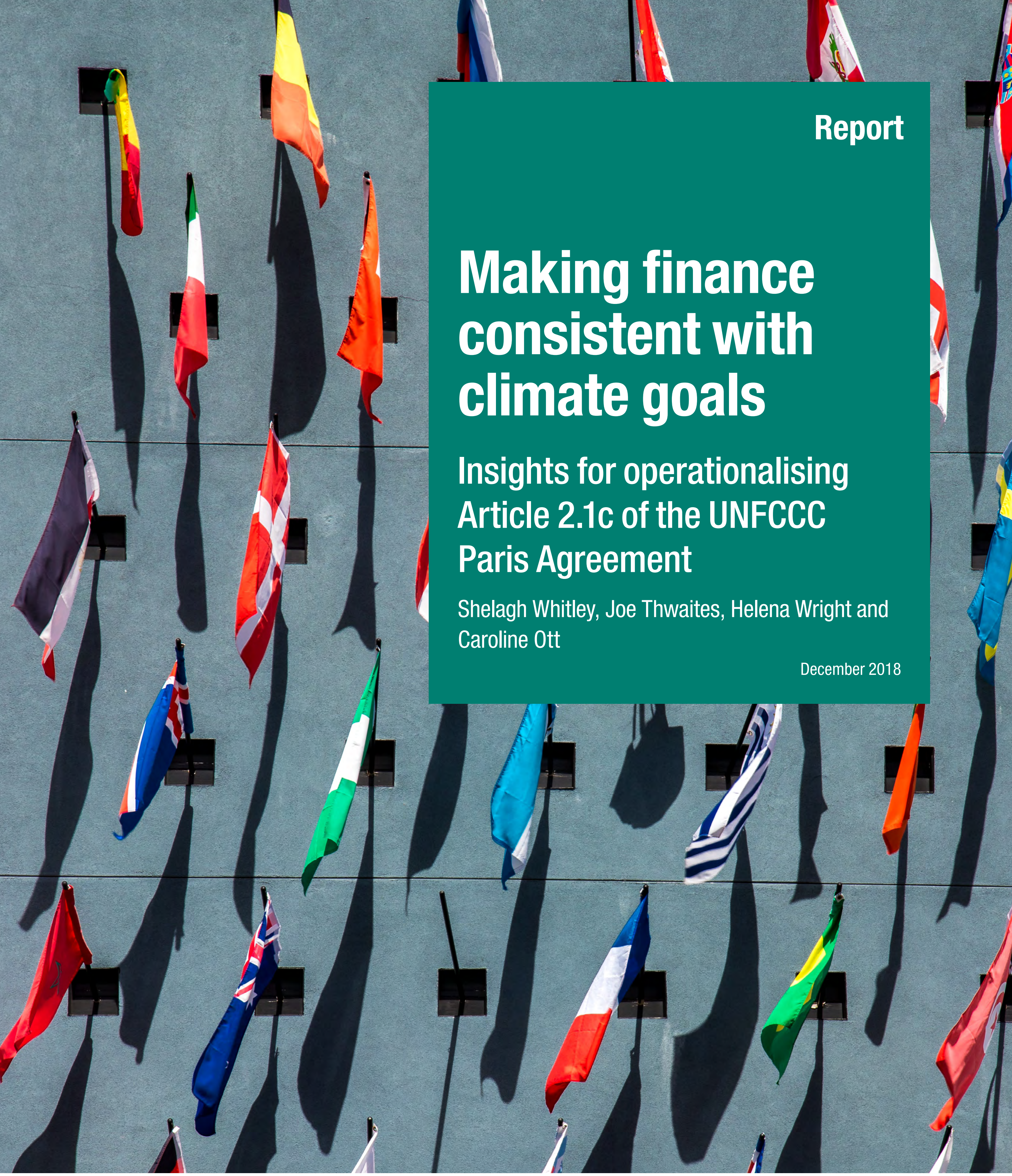

Report

Making finance consistent with climate goals

Insights for operationalising Article 2.1c of the UNFCCC Paris Agreement

Shelagh Whitley, Joe Thwaites, Helena Wright and Caroline Ott

December 2018

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Executive summary

Parties to the Paris Agreement – 183 countries as of November 2018 – have committed to 'making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development' (Article 2.1c). This commitment represents one of the Agreement's three long-term goals, with the other two (2.1a and 2.1b) focused on limiting the increase in global average temperatures to well below 2°C, and ideally 1.5°C above pre-industrial levels (Article 2.1a) and increasing the ability to adapt to climate change (Article 2.1b). The three goals are closely connected: realignment of finance is a necessary condition for achieving the temperature and adaptation goals of the Agreement. And there is no time to delay: the recent Intergovernmental Panel on Climate Change (IPCC) report found that to keep warming to 1.5°C the world needs to reach net-zero greenhouse gas emissions within 25 years, and that this will require a 'major reallocation of the investment portfolio'. More starkly, emissions are currently on track to exceed the 'carbon budget' for 1.5°C by 2030.

Article 2.1c breaks new ground. It is the first time that the United Nations Framework Convention on Climate Change (UNFCCC) process has set a collective goal reflecting the full scale of effort needed on finance to successfully address climate change. It acknowledges a vital piece of the puzzle in tackling climate change, sending a strong signal about the need to look at all finance (both public and private, domestic and international) and ensure it is supportive of, and not undermining the transition to a low-greenhouse gas emission, climate-resilient world.

To meet their commitments under the Paris Agreement, and reap the wider benefits of climate-compatible investment, governments and non-state actors need to identify processes – both within the UNFCCC and beyond – to operationalise Article 2.1c, and to explore the array of tools available to cost-effectively manage the transition.

To this end, this paper develops a three-part framework to support governments (primarily – as they are the Parties to the Paris Agreement) and non-state actors to identify opportunities to: (1) drive action to mobilise and shift finance; (2) track progress against Article 2.1c; and (3) increase ambition (see Figure S1).

As part of highlighting the approaches that can be taken both inside and outside of the UNFCCC, we also outline the four key sets of tools that primarily governments can employ to shift finance. This toolkit includes: financial policies and regulations; fiscal policy levers; public finance; and information instruments (see Figure S2).

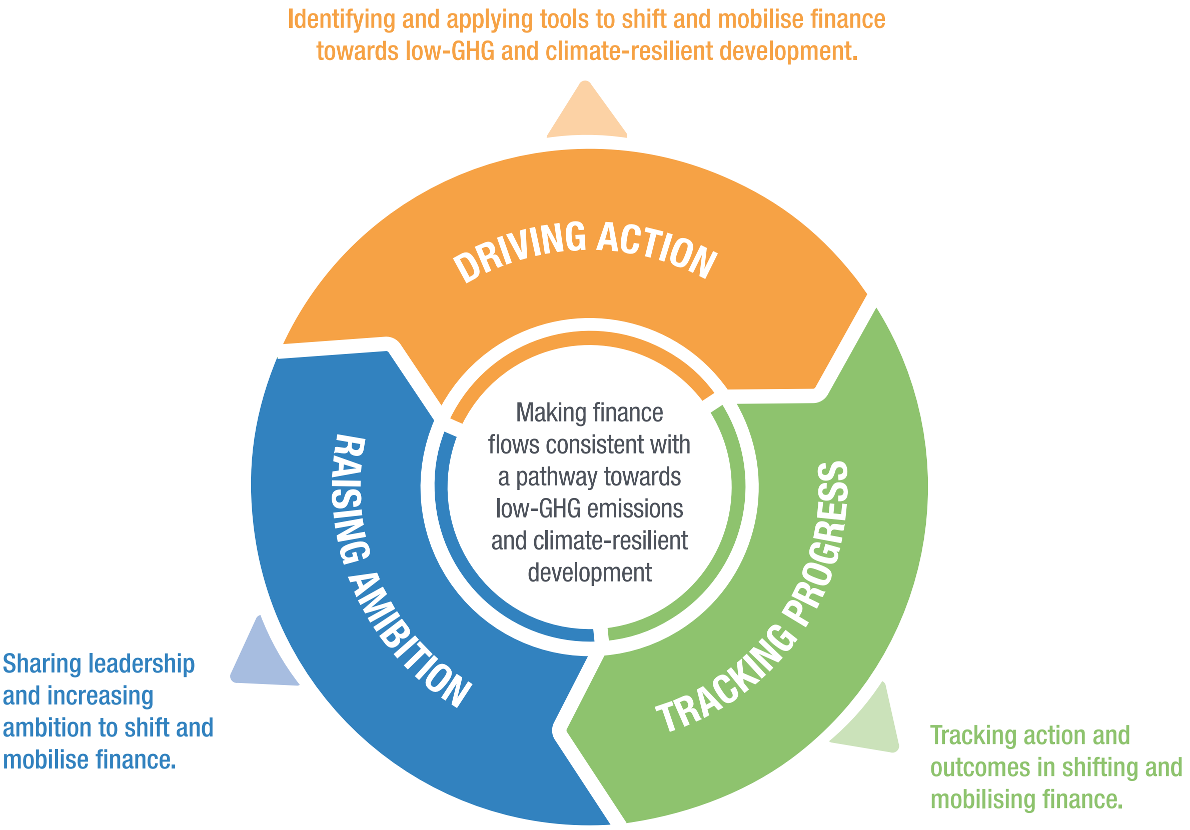
Using real-world examples for each, we look at how these tools are currently being used to drive action and how they are included in existing processes to track progress, and at the focus of efforts to raise ambition towards Article 2.1c. To limit the scope of this toolkit, we focus on financial policies and regulations linked to the finance specific goal of Article 2.1c. We have not included an analysis of wider policies and regulations that are key to achieving the mitigation and adaptation objectives of Articles 2.1a and 2.1b, while recognising they are also critical for shaping finance.

Finally, we outline key next steps needed to ensure that the UNFCCC processes and linked activities support countries to achieve the objectives of Article 2.1c. These include:

- **within the UNFCCC** – clarifying and building upon provisions of the Paris Agreement and associated UNFCCC processes to more clearly support action that countries can take towards Article 2.1c. These include the Global Stocktake, nationally determined contributions (NDCs) and the enhanced transparency framework. Given the nationally determined nature of commitments under the Paris Agreement, countries can voluntarily integrate Article 2.1c into their efforts

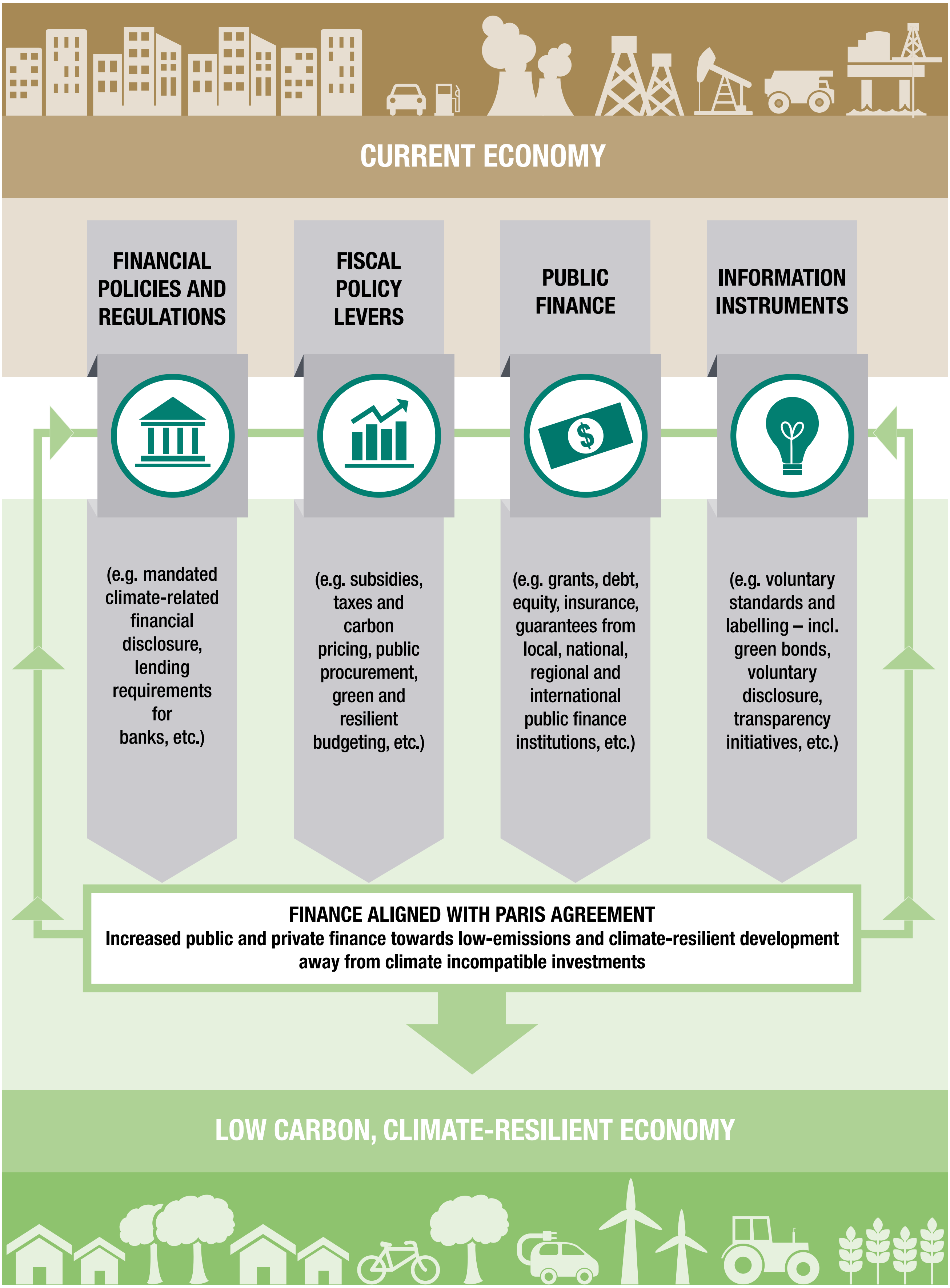
- **beyond the UNFCCC** – mobilising key actors beyond Parties to the UNFCCC (including public finance institutions, investor and business groups, etc.) on Article 2.1c and its implications and opportunities; follow-up with existing initiatives to ensure these groups deliver on their existing commitments as well as make new Paris-aligned, ambitious commitments that target the mainstream of financial markets; and, in the near-term, engage with the UN Secretary-General's 2019 Climate Summit and its linked Climate Finance Leadership Initiative (CFLI).

Figure S1 Framework for operationalising Article 2.1c of the Paris Agreement



Note: GHG=greenhouse gas
Source: authors' own.

Figure S2 Government tools to shift and mobilise finance



Source: authors' own, adapted from Watson and Schindler (2017).

1 Introduction

Parties to the Paris Agreement – 183 countries as of November 2018 (UNFCCC, 2018a) – have broken new ground by committing to 'making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development' (UNFCCC, 2015: Art. 2.1c).[1] This is the first time that the international community has set a collective goal reflecting the full scale of financial effort needed to successfully address climate change. It sends a strong signal about the need to look at all finance – both public and private, domestic and international – and ensure it is directed to be supportive of and coherent with the transition to a low-greenhouse gas emission, climate-resilient world.

The commitment under Article 2.1c represents one of the Agreement's three long-term goals. The other two (2.1a and 2.1b) focus on limiting the increase in global average temperatures to well below 2°C, and ideally 1.5°C above pre-industrial levels (Article 2.1a) and increasing the ability to adapt to climate change (Article 2.1b). The three goals are closely connected; shifting and mobilising finance is a necessary condition for achieving the temperature and adaptation goals of the Agreement.

To support these long-term temperature goals, Parties to the Paris Agreement have committed to more urgent near team action, aiming to 'reach global peaking of greenhouse gas emissions as soon as possible' and to achieving net-zero emissions by mid-century (Article 4.1).[2] And there is no time to delay: emissions are currently on track to exceed the 'carbon budget' for 1.5°C by 2030. The recent IPCC special report finds that to limit global temperature increase to 1.5°C, the world needs to reach net-zero greenhouse gas emissions within 25 years, and that this will require a 'major reallocation of the investment portfolio' (Rogelj et al., 2018).

To give a sense of the scale of investment that needs realigning, the IPCC references available statistics of the global stock of $386 trillion of financial capital ($100 trillion in bonds, $60 trillion in equity and $226 trillion of loans managed by the banking system) (de Coninck et al., 2018).

Already, investors with $30 trillion of assets under management have called for aligning financial flows with the Paris Agreement (Investor Agenda, 2018). These 345 investors have noted that governments that 'lead in implementing the Paris Agreement and enacting strong climate and low carbon energy policies will see significant economic benefits and attract increased investment that will create jobs in industries of the future'. This is borne out by recent research, which finds that if climate compatible investments are made over the near-term – including an estimated $90 trillion which is expected to be invested in infrastructure over the next 15 years – this will support economic growth, innovation, public health and employment, and avoid locking economies into high-polluting, low-productivity and deeply unequal pathways (NCE, 2018).

Given the speed at which it is necessary to make finance consistent with the Paris Agreement, and the wider benefits of climate compatible investment, a wide range of actors in the public and private sector, from the local to global

1 Henceforth, references to Articles without additional clarification refer to those of the Paris Agreement.

2 'In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.' Source: UNFCCC (2015): Art. 4.1.

level, urgently need to take action. This can be supported through more near-term thinking, both within and around the UNFCCC processes, on how to increase ambition and track progress towards low-emission, climate-resilient economies, and to explore the wide range of tools available to manage the transition cost-effectively.

Furthermore, while the Paris Agreement has commitments and mechanisms focused on the provision and mobilisation of climate-specific finance, it does not currently have well-established mechanisms focused on the overall alignment of finance to deliver on the temperature and adaptation goals. In implementing the Paris Agreement, it will be critical to determine how progress towards Article 2.1c can be defined, reported on and collectively assessed in the near- and medium-term – both in the context of the Global Stocktake[3] and outside UNFCCC processes.

To this end, this paper seeks to answer a range of key questions to support the operationalisation of Article 2.1c:

- What is a useful framework for thinking through opportunities to operationalise Article 2.1c? (Chapter 2)
- Based on elements of that framework, what are the key opportunities for: (1) driving action; (2) tracking progress towards Article 2.1c; and (3) increasing ambition towards aligning finance with the Paris Agreement, both within the UNFCCC and beyond? (Chapters 3–5)
- What are next steps needed to ensure that the UNFCCC processes and linked activities support countries to achieve the objectives of Article 2.1c? (Chapter 6)

This paper focuses primarily on the role of governments in operationalising Article 2.1c, as they are the Parties to the Paris Agreement and key to shaping both public and private finance. Nonetheless, we also include a brief review of the role of the private sector, including private investors, in each sub-section on information instruments (see Chapter 3, Figure 3).

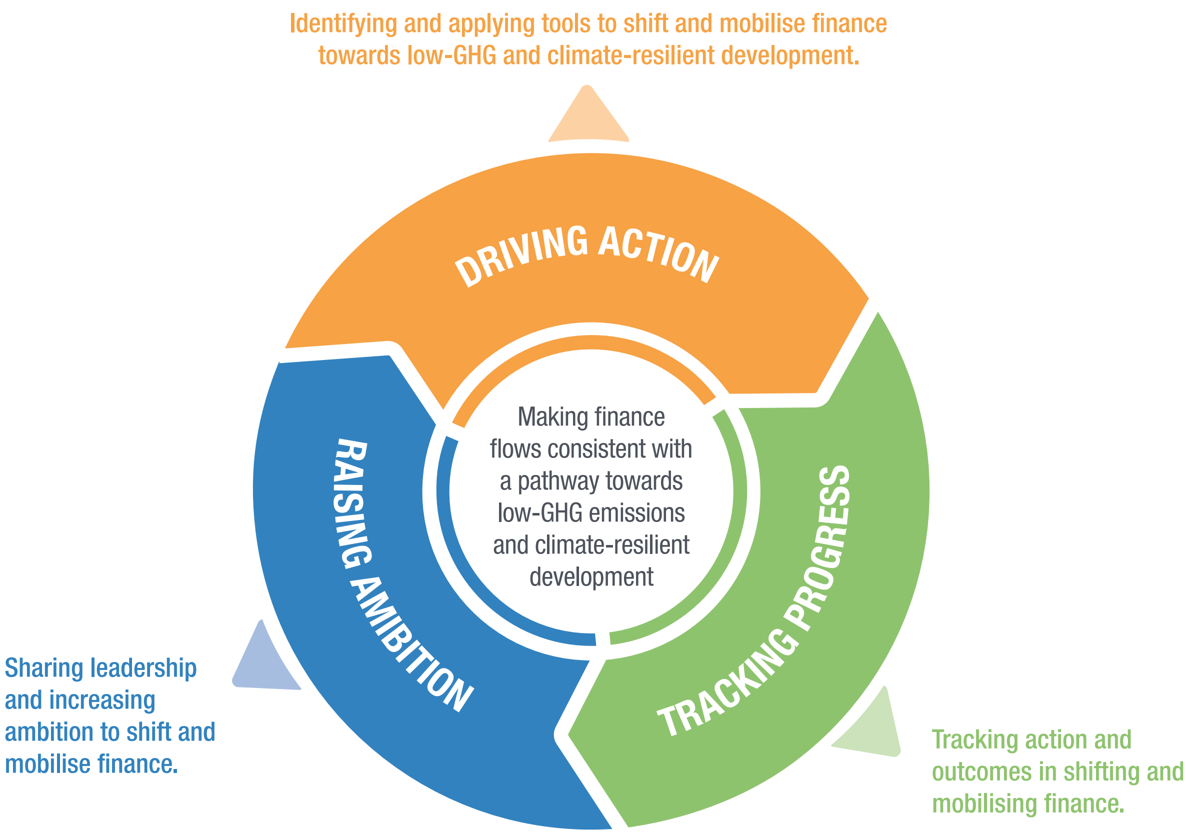
3 Article 14.1 of the Paris Agreement requires the Conference of the Parties to 'periodically take stock of the implementation of [the] Agreement to assess the collective progress towards achieving the purpose of the Agreement and its long-term goals'. This process is called the Global Stocktake (UNFCCC, 2018b).

2 Framework for operationalising Article 2.1c

Despite being one of the Paris Agreement's three long-term goals, there is not currently a clear, shared understanding among countries or other stakeholders of what Article 2.1c means for climate policy development and implementation. Nor is there a clear place in the negotiations for Parties to discuss and develop a shared understanding of the goal and how to operationalise it (Bodle and Noens, 2018). To help catalyse these discussions, and without prejudging their outcomes, this paper sets out a possible framework that highlights the different entry points for governments and other stakeholders to operationalise Article 2.1c (Figure 1).

The framework was developed through a series of consultations and engagement meetings between December 2017 and October 2018 (Appendix 1), as well as desk research. It is presented as a cycle, the different phases of which represent various stages of development and implementation of government tools to shift and mobilise finance, track progress and increase

Figure 1 Framework: opportunities to operationalise Article 2.1c



Source: authors' own.

ambition. This also reflects the cycle envisioned in the Paris Agreement of planning, implementing and reviewing progress on climate actions (Dagnet et al., 2018).

The phases may sometimes occur in a different order than that described and may overlap. This framework is therefore not designed to be a prescriptive list to be followed in a linear fashion. Nonetheless, it can serve as a useful guide for identifying current activities and new opportunities (both within the international system and domestically) to support the goal of making finance consistent with the wider Paris goals.

Each stage of the framework can provide insights, evidence and momentum towards achieving Article 2.1c. If implemented in the near-term, there are opportunities for the architecture and processes of the Paris Agreement or UNFCCC more broadly to facilitate implementation of each stage of the framework (see Figure 2). It is important to note that some elements of the Paris Architecture support more than one aspect of the framework, and their placement on the diagram is to indicate where they are most firmly rooted but not to limit their application elsewhere. Processes taking place in the public, private and third sectors at international, national and sub-national levels can support this. Chapters 3–5 of this paper outline the details of each stage and their connections, along with real-world examples for each. In brief, the framework outlines opportunities for:

Driving action. Governments can deploy a number of tools to make finance consistent with the Paris goals. They can: (1) create a suitable investment environment through financial policies and regulations;[4] (2) align price signals and public resources through the effective use of fiscal policy and budgets; (3) harness public finance to shape wider investment; and (4) use information instruments (often voluntary) to increase transparency and establish standards (see Figure 3). Although these processes are mostly led and implemented by governments, the private sector and civil society also play a key role in deploying tools to shift and mobilise finance – particularly for information instruments. Within the UNFCCC architecture, commitments in nationally determined contributions (NDCs) and long-term strategies help drive action, market and cooperative mechanisms under Article 6 can support the development of relevant policy tools, and commitments in Article 9 (including those delivered through the financial mechanism and other multilateral climate funds that serve the Agreement) support the mobilisation of finance.

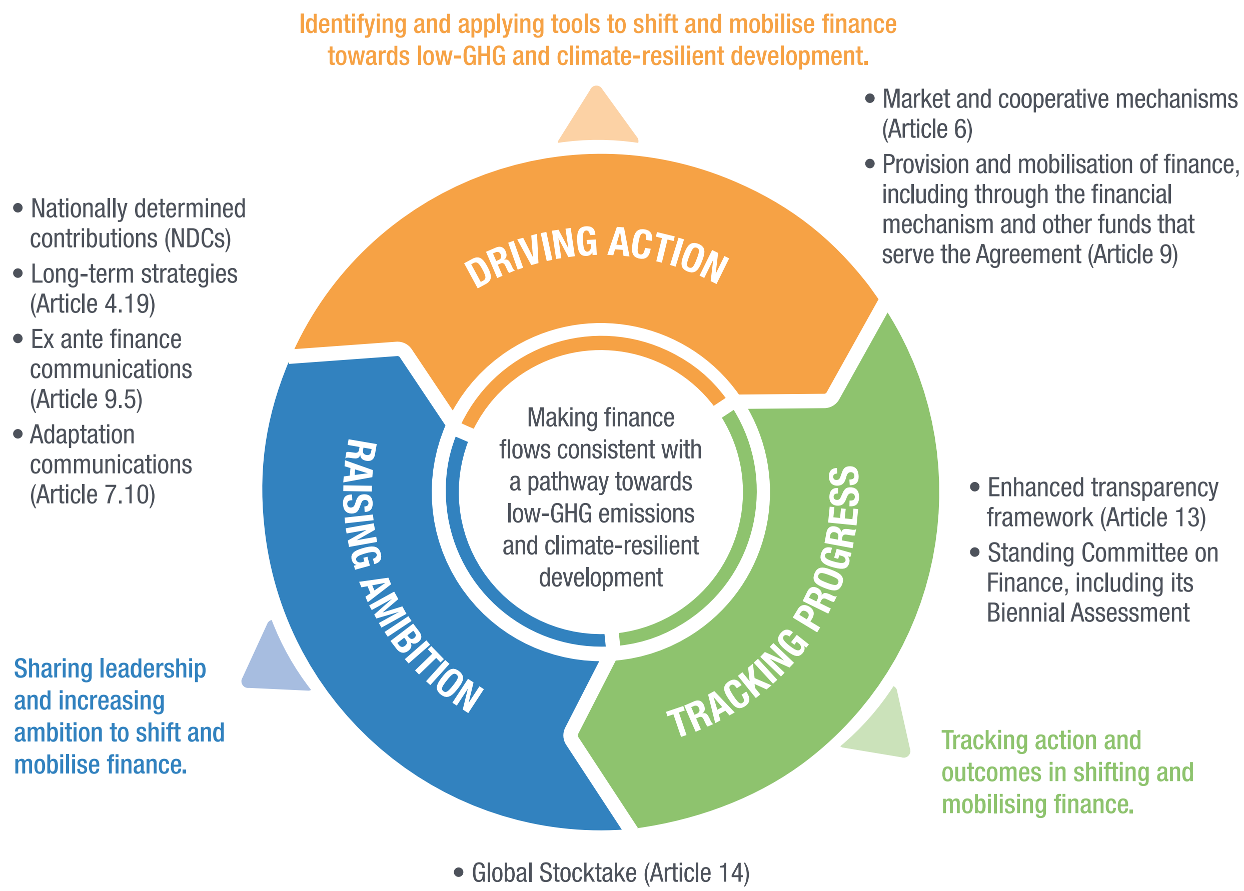
Tracking progress. In addition to deploying tools to align finance, policy-makers – supported by financial actors and civil society groups – can build on and add to existing approaches for tracking and assessing the consistency of finance with low-emissions and climate resilient development. It will be critical for these actors to use this information to track results and learn lessons in working towards Article 2.1c. This will also support a collective assessment of progress and identification of further action needed to meet the goal, recognising that there is no single pathway towards achieving it. In the context of the UNFCCC, the Standing Committee on Finance (SCF) has an important role in collating data that is relevant to tracking progress towards Article 2.1c. The primary means for sharing learning and progress towards the objectives set in each country's NDC is the Paris Agreement's enhanced transparency framework (Art. 13), where reporting on both actions and support could include information relevant to Article 2.1c.

Raising ambition. In the near term, as well as requiring new NDCs, the Paris Agreement invites countries to develop long-term low-emission development strategies by 2020, which should further raise ambition (Art. 4.19; COP Decision 1/CP.21, paragraph 53). Over the medium term, the primary process within the UNFCCC for assessing collective progress is the Global Stocktake, which will take place every five years (the first in 2023) and will assess collective progress towards achieving the Agreement's long-term goals (Article 14.1), including Article 2.1c.

4 Although wider policies and regulations are key to achieving the mitigation and adaptation objectives of Article 2 (and to shifting and mobilising finance), to keep the scope of the paper reasonable here we have focused on financial policies and regulations more relevant to Article 2.1c (see section 3.1).

The Global Stocktake should also draw on inputs from outside the UNFCCC, including reporting from development finance institutions, aggregators of investment data and wider analyses of investment portfolios, to ensure it can comprehensively assess global finance and help identify the full range of actions that can enable NDCs to be enhanced over time. Adaptation communications (Art. 7.10) and finance communications (Art. 9.5) are also vehicles for countries to elaborate more ambitious actions to meet Article 2.1c. There are several initiatives that are involved in raising ambition on the greening or sustainability of the financial system and that can positively reinforce the raising of ambition on NDCs under the UNFCCC, and vice versa. Furthermore, government commitment to more ambitious NDCs in the UNFCCC also sends a signal within the capital markets and may help catalyse private sector investments.

Figure 2 Framework: opportunities within the UNFCCC to operationalise Article 2.1c of the Paris Agreement



Source: authors' own.

3 Driving action

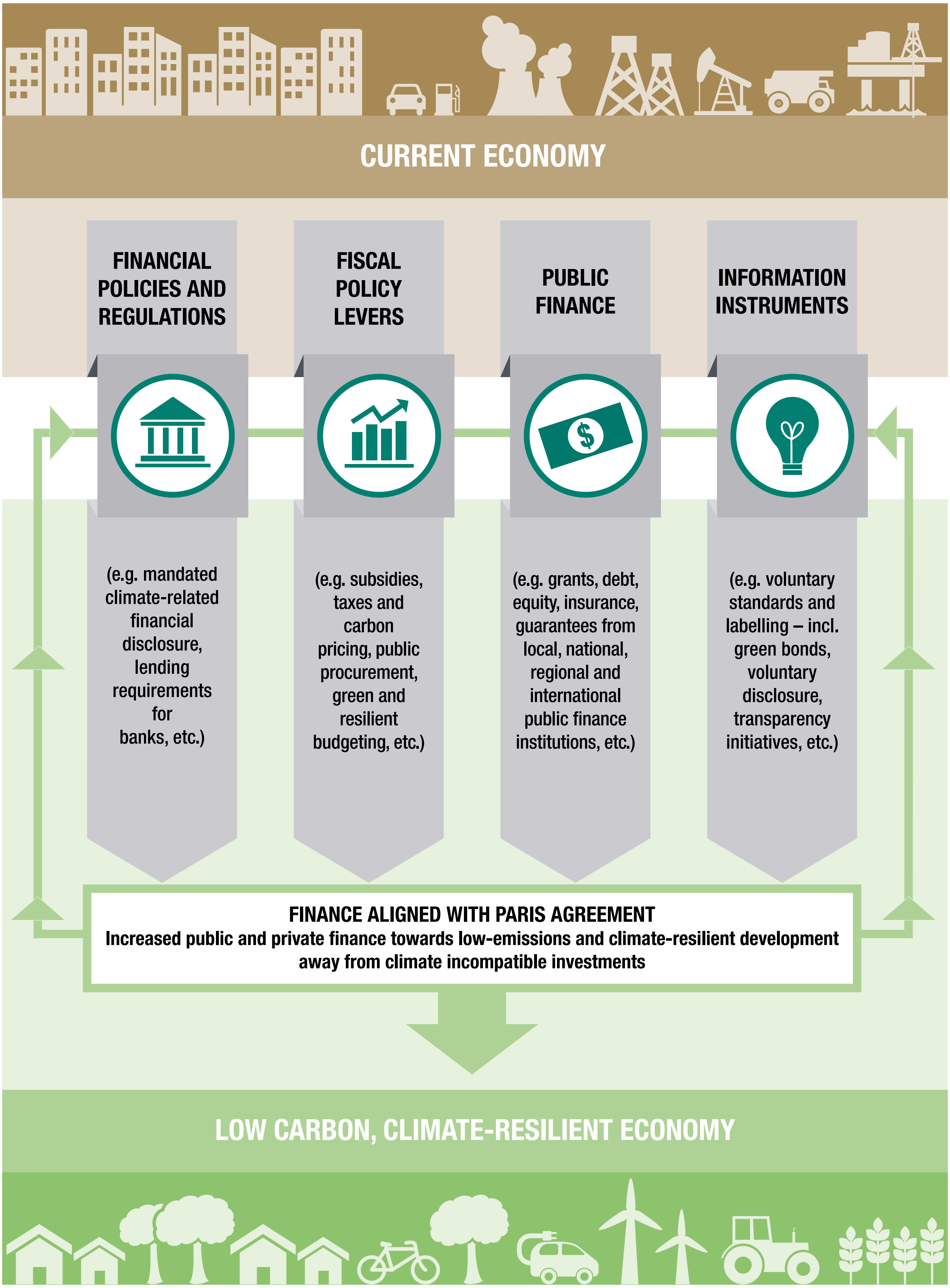
The success of the transition to climate compatible investment will be driven by the interplay of the financial sector and the real economy (Watson and Schindler, 2017). Change must come from both public and private actors. But, given the urgency of action needed, it cannot be only voluntary and will therefore need to be triggered by policy instruments. Governments are therefore crucially important in this space, as they can deploy incentives to drive the real economy's demand for low emissions and climate-resilient finance and to increase supply of climate-compatible finance. This paper identified four categories of tools that these actors can employ: (1) financial policies and regulations; (2) fiscal policy levers; (3) public finance; and (4) information instruments (adapted from GGBP, 2014; Watson and Schindler, 2017). Increased public and private investment, and a shift away from high-carbon and maladaptive investment, are both an output of the application of these tools and a catalyst to further climate-compatible investment (see Figure 3).

The list of tools or instruments set out in Table 1 builds on guidance from the World Bank, a range of UN agencies and others including the Green Growth Best Practices initiative on 'inclusive green growth' and 'strategic green industrial policy'. The World Bank argues that, to support green growth, a combination of instruments is needed for 'imposing, incentivizing, and informing' (World Bank, 2012). The UN's Partnership for Action on Green Economy (UN PAGE) outlines how these instruments have different types of impacts, with regulation (provided it is enforced) having a strong steering impulse, voluntary/informational instruments having a 'soft' steering impulse; and market-based instruments (fiscal policy and public finance) lying somewhere in between (UN PAGE, 2016a: 81). They each influence behaviour of actors in the finance sector (and the wider real economy) in different ways, with financial policies and regulations influencing behaviour through binding laws and regulations and enforcement, fiscal policy levers influencing behaviour through price signals, public finance shifting financial risk, and information instruments influencing behaviour through awareness (see Table 1) (Whitley et. al., 2016).

Governments will often employ tools from more than one category, deploying a coordinated mix of several instrument types, either at the same time or sequentially (UN PAGE, 2016a). For example, governments may start by developing a set of voluntary emissions standards for power plants, before introducing tradable permits to enhance efficiency and then only later setting mandatory emission quotas. These government tools are also constantly evolving, with countries adapting and refining them over time through cycles of learning (both internally and with other countries) supporting increased ambition over time, as outlined in Figure 1.

As with the wider framework, the boundaries between the different categories of government tools in Figure 3 and Table 1 are not always clearly defined, and instruments may have the features of more than one category. For example, project preparation facilities may have been capitalised through public budget but include support through both public finance and information instruments, and so would sit across three categories (Nassiry et. al., 2018). Sections 3.1–3.5 in this chapter provide more detailed definitions for each category of tools, as well as leading examples of how each tool has so far been deployed to shift finance and the links and overlaps between them.

Figure 3 Government tools to shift and mobilise finance



Source: authors' own, adapted from Watson and Schindler (2017).

Table 1 Government tools to shift and mobilise finance

Financial policies and regulations	Fiscal policy levers	Public finance	Information instruments
(primarily influence behaviour through force of law)	(primarily influence behaviour through price)	(primarily influence behaviour by shifting financial risk)	(primarily influence behaviour through awareness)
• lending requirements • accounting systems • mandates of supervisory authorities • standards • plans and strategies • disclosure requirements *(where mandatory and enforced)*	• taxes • levies • royalties • price support or controls • public procurement • budget support *(including for establishment of public funds and finance institutions and state-owned enterprises)*	• grants • debt • equity • guarantees • insurance *(from public pension funds, sovereign wealth funds, and public finance institutions)*	• certification and labelling • transparency initiatives • corporate strategies • awareness campaigns • statistical services • scenario analysis and stress testing • standards • plans and strategies • disclosure requirements *(where voluntary)*

Note: this list is not exhaustive, and some examples may be linked to other categories (e.g. public budget support is needed to: capitalise public finance institutions and to establish information instruments such as awareness campaigns or voluntary standards where they are government led).

3.1 Creating enabling frameworks: financial policies and regulations

Creating a regulatory environment and policy framework that is backed by strong enforcement mechanisms encourages and enables climate compatible investment by sending 'long, loud and legal' signals of the direction the economy will be headed towards (Hamilton, 2009). Coherent, and long-term frameworks, including through binding financial policies and regulations, are important to increase the certainty of return on investment and to credibly help mitigate risks faced over the lifetime of a project. This enables investors to look ahead and invest accordingly (see examples in Table 1) (GGBP, 2014).

Although they may not all include policies and regulations for the finance sector, there are now over 1,200 climate change or climate-related laws worldwide, a twentyfold increase over 20 years (Nachmany et al., 2017). Established in 2008, the best known of these is the UK Climate Change Act, which set a statutory long-term emissions target and requires the adoption of a rolling set of medium-term carbon budgets. A recent review of the Act found that it has provided some increased clarity for investment decisions but that there is a widening gap between the emissions targets set in law and the policies put in place to deliver them (Fankhauser et. al., 2018).

In addition to these critical long-term legal signals that may be set at the level that can impact financial decision-making, there are specific financial-sector policies and regulations that have been (or are being) developed to shift and mobilise finance towards low-emission and climate-resilient development. There are also various policies and regulations that are focused on the real economy (infrastructure, housing, manufacturing, energy etc.), which will be critical to shaping and shifting investment in those sectors.[5] These are too numerous and diverse for this paper to explore in a useful level of detail, but could be taken up as part of a wider research agenda on this topic (see also section 6.2: Table 6). Instead, this section focuses on financial policies and regulations.

5 For example, the European Union has adopted several measures to improve energy efficiency, including the 2012 Energy Efficiency Directive. As a result, the energy intensity in EU industry decreased by 16% between 2005 and 2014, and Europe is responsible for the largest share of global investment in energy efficiency (EC, 2018a; IEA, 2018).

Examples of use of financial-sector polices and regulations towards Article 2.1c

- In **2015**, France became the first country to pass a law mandating climate-related reporting for asset owners and asset managers, including explanations of why and where they are not disclosing information. The Energy Transition Law requires that investors disclose how they factor environmental, social and governance (ESG) dimensions into investment decision-making processes and policies and how they address climate change-related risks, as well as to assess and report on their contribution to international efforts to cap global warming and support France's energy transition (Assemblée Nationale, 2015).
- In **2015**, the Reserve Bank of India (RBI) (India's central bank) included lending to small renewable energy projects within the targets of its Priority Sector Lending requirements (Upadhyay, 2015).
- In **2017**, Indonesia's Financial Services Authority (OJK) Board of Commissioners issued a mandatory regulation on sustainable finance for banking, capital markets and non-bank financial institutions, coupled with voluntary financing guidelines for renewable energy, energy efficiency, green buildings, organic farming and palm oil (Jong, 2017; OKJ, 2017).

In addition to these examples, where regulations and policies are already in place, important pilots are also being undertaken and legislative proposals are under development:

- In **2016**, seven Chinese ministerial agencies released the 'Guidelines for Establishing the Green Financial System' – recommendations for greening China's financial system. The recommendations are currently being piloted in five provinces, several of which have established provincial green finance committees (IIGF, 2017).
- In **2018**, the European Commission (EC) made a set of legislative proposals that included: establishing a unified European Union (EU) classification system of sustainable economic activities ('taxonomy'); and improving disclosure requirements on how institutional investors integrate ESG factors in their risk processes (EC, 2018b).

Relevant UNFCCC mechanisms

There is not currently an element of the UNFCCC architecture in which the development of policies and regulations for the finance sector to support deeper alignment of finance with the Paris Agreement are specifically discussed. However, NDCs provide an opportunity for countries to communicate planned policies related to aligning finance to deliver on their climate commitments.

3.2 Aligning price signals and public resources: effective use of fiscal policy and budgets

Fiscal policy levers and strategic use of public budgets can shift private investment decisions and consumer behaviour towards low-carbon, climate-resilient activities by influencing prices and thereby reducing the cost of capital for investment in sustainable activities relative to capital for investment in unsustainable ones (GGBP, 2014). Well-known fiscal instruments include energy taxes and carbon pricing schemes, and the use of public budgets, including through green procurement (see Figure 3). Although less studied, fiscal policy can also encourage resilience to be built into systems, such as those for infrastructure development and natural resource management (in water- or land-use sectors) (Watson and Schindler, 2017).[6] Although there is often a temptation to focus on developing new instruments, governments must also redirect (and in some cases phase out) existing incentives and subsidies – for example, incentives for deforestation (including agricultural incentives), and subsidies for fossil fuels and infrastructure construction on flood plains.

6 Resilience refers to the ability to cope with and adapt to shocks and stresses, such as those generated by climate change.

In addition to shaping investment, fiscal policy levers play a parallel role in raising public revenues that can then be used to support public investment (in priorities including health, education, security, resilience and climate compatible infrastructure), all the while reducing public expenditure on activities that are misaligned with climate goals. This public spending can be undertaken through deployment of public budgets, procurement and public finance (see section 3.3), and can greatly increase climate-compatible investment when they have strong governance systems and are integrated with fiscal frameworks and strategic plans (GGBP, 2014). Governments can also make public budget allocations directly to priority initiatives and to national and sub-national agencies. Research has found that across Organisation for Economic Co-operation and Development (OECD) and G20 countries, renewables investment between 2000 and 2014 was driven primarily by targeted investment incentives – i.e. feed-in tariffs, renewable certificates and public tenders (Ang et al., 2017).

Using fiscal policy instruments can lead to an increase in fiscal space, which can be used for public priorities including low-emissions and climate-resilient investments. Where these new public resources are used to address climate change, this should be accompanied by wider social protection to support resilience across groups and communities. This can include providing grants to low income groups in the case of the removal of other subsidies (GGBP, 2014). Designing progressive green fiscal policy instruments in the first instance can promote equality among income groups.

Examples of use of fiscal policy and budgets towards Article 2.1c

- In **2008**, the province of British Columbia in Canada introduced a carbon tax covering three-quarters of its emissions (rising to a price of $24 by 2012). The tax reduced fossil fuel use in transportation and buildings and resulted in changes in home heating practices and industrial processes. Between fiscal years 2008/09 and 2015/16, the revenue recycling scheme also brought an estimated net benefit to taxpayers of $1.3 billion, benefitting low-income households (NCE, 2018).
- In **2010**, the Moroccan government created and funded[7] the Moroccan Agency for Solar Energy (now the Moroccan Agency for Sustainable Energy) to develop a pipeline of solar projects. The projects required $9 billion in investment and led to a green bond issuance (Ben Mohamed, 2016; Reuters, 2016). Other governments, such as those in South Africa and Brazil have established similar funds to support priority low-carbon development projects (GGBP, 2014).
- In **2011**, India introduced a Clean Environment Cess (later Clean Energy Cess), a tax on the coal use, part of the revenue from which was reallocated to support renewable energy development (Garg et. al., 2017).
- In **2011**, Uruguay established auctions and time-limited fixed tariffs to support deployment of wind energy, which led to a rapid transformation in this sector (UNDP, 2012; Westphal and Thwaites, 2016).
- In **2012**, the Philippines established the People's Survival Fund, a national fund that provides grants to local communities to implement climate adaptation projects. It receives an annual allocation of ₱1 billion ($18.5 million) from the national budget and can receive additional support from donations, grants and endowments (Congress of the Philippines, 2011).
- In **2014**, Indonesia deregulated prices for diesel and gasoline, thereby saving $16 billion, which coincided with falling world oil prices. Savings were reinvested in budget increases for key ministries, infrastructure investment by state-owned enterprises and transfers to villages (Pradiptyo et al., 2016).
- In **2015**, India changed how it distributes tax revenue among its 29 state governments, which is now based on population, area, income *and* forest cover, to encourage forest conservation (though the results are not yet clear) (Busch and Mukherjee, 2017).

7 Tthe public investment deployed by these funds and agencies would be captured under the next category of public finance (see section 3.3).

- In **2017**, Fiji became the first emerging market to issue a sovereign green bond, raising FJ$100 million, which focuses primarily on investments that build resilience against the impacts of climate change (World Bank, 2017). See section 3.4 on information instruments supporting green bonds including voluntary standards and certification.
- In **2018**, the EU announced that it would target 25% of all expenditure towards climate objectives in its next seven-year budget. This is up from 20% in the current budget, which covers 2014–2020 (Simon, 2018).

Relevant UNFCCC mechanisms

There is currently only one element of the UNFCCC architecture that directly supports the development of a carbon price and can therefore be considered a fiscal policy tool. This was initially established under the Kyoto Protocol through the Clean Development Mechanism (CDM) and Joint Implementation (JI) mechanism (UNFCCC, 2018c). The use of these so-called 'market' and 'cooperation' mechanisms was reiterated in the Paris Agreement under Article 6 but the scope, governance and infrastructure for operationalising its provisions are still to be agreed (ADB, 2018). As for policies, NDCs provide an opportunity for countries to communicate fiscal policies and budget allocations to deliver on their climate commitments.

3.3 Harnessing public finance to shape wider investment

Well-designed public funding can unlock private investment by lowering the cost or risk-taking of capital. For this paper, we use a narrow definition of public finance, excluding the expenditures through fiscal policy and public budgets outlined in section 3.2 and focusing on expenditure from majority government-owned financial institutions and funds. For example, while the public resources used to establish or capitalise a public fund or institution would be captured under use of public budgets in section 3.2, the grants, loans or guarantees disbursed by those public funds or institutions (and the rules governing that disbursement) would be captured here, under the category of public finance.

Although public finance in the context of climate change is often more narrowly focused (at the project or programme level) than wider policy and regulatory instruments and the use of fiscal policy and public budgets, there is a wealth of literature on its design. The literature is aligned in the finding that if public finance targets individual barriers to climate compatible investment and occurs over a relatively long period (more than five years), it can catalyse private investment (GGBP, 2014). Parallel technical assistance is often crucial to building capacity in local financial institutions and developing pipelines of investable projects, including through demonstration projects, and support for project preparation (GGBP, 2014). Concessional public finance (including grants) can also be critical in supporting research and innovation, capacity building and public goods, such as investments in adaptation that the private sector may be unwilling or unable to undertake (Watson, 2016).

Governments can employ a variety of financial instruments to mitigate financial risk and increase returns for private investment. These include concessional loans or equity, grants for investment and for technical assistance, guarantees and insurance mechanisms. Over time, public finance can be deployed alongside other tools in this framework (see Figure 3), including complementary policies and regulations, market incentives and transparency of information and data. As markets develop and private investment grows, there is often less need for direct interventions through public finance at the project and programme level and more need for wider support from government through policies and regulations (GGBP, 2014). Public funds can also shift finance flows by divesting, which raises the cost of capital for private investors and sheds risk for the public entity.

Public finance to support wider climate-compatible investment can be allocated directly from public budgets (see section 3.2), by establishing international, national or sectoral fund structures (including sovereign wealth funds) or through financial intermediaries, including national and local development banks and, more specifically, green investment banks. Countries can also tap into international sources of public finance from bilateral, regional and multilateral financial institutions. It will be critical for existing sources of public finance to shift investments away from high-carbon and maladaptive investments.

Examples of use of public finance towards Article 2.1c

- The German government-owned development bank KfW has been investing domestically and internationally **since the 1980s** in environmental protection, including 'special programmes to foster the use of renewable energy, to increase energy efficiency and to promote innovative technology companies' (KfW, 2016).
- In **2011**, the UK government established the UK Green Investment Bank (GIB) (now Green Investment Group) to channel national government funding into lowering emissions via renewable energy projects (before it was reclassified as a private institution). The GIB's Operating Offshore Wind Farm Fund reached a first close of £463 million ($608 million) from pension funds and a sovereign wealth fund (GGBP, 2014).
- In **2015**, Norway's parliament ordered the country's sovereign wealth fund to divest from companies that derived more than 30% of their turnover or activity from coal (Reuters, 2017). The government is currently considering a recommendation from Norway's central bank to sell the billions it holds in oil stocks (Norges Bank, 2017).
- In **2017**, New York Governor Cuomo announced that the New York Green Bank is seeking to raise at least an additional $1 billion from the private sector to combat climate change. Initially capitalised with public funds, the Bank has a track record of driving nearly $1.4 billion in clean energy investment in New York State (New York State Governor Press Office, 2017).
- In **2018**, the mayors of London and New York committed to divest their city pension funds from fossil fuels. Already, less than 2% of the London Pension Fund Authority's investments of £5.5 billion ($7.1 billion) are invested in fossil fuel production, and it has plans in place to divest its remaining investments by 2020 (LPFA, 2017). New York has a goal of total divestment within five years, removing $5 billion in investment from the industry (de Blasio and Khan, 2018).

In addition to these examples of deploying public finance at the national and sub-national level, there are also examples at the international level, including through the UN (and UNFCCC), OECD and multilateral development banks (MDBs):

- In **2012**, the UN's International Fund for Agricultural Development (IFAD) launched the Adaptation for Smallholder Agriculture Programme, the world's largest climate change adaptation programme with a focus on smallholder farmers, which has channelled more than $300 million to smallholder farmers (UNFCCC, 2018d).
- In **2015**, participants to the Arrangement on Officially Supported Export Credits agreed new rules on official support for coal-fired power plants, including restrictions on official export credits for the least efficient coal-fired power plants (OECD, 2015a).
- As of **mid-2017**, 12 MDBs and 11 national development banks (NDBs) (or agencies) had restrictions on coal financing (Oil Change International, 2017).
- In **2017**, the World Bank Group announced in response to threat posed by climate change that it 'will no longer finance upstream oil and gas' after 2019 (World Bank, 2017b).
- In **2017**, the Agence Française de Développement (AFD) – France's public development bank – committed to make all of its activities 100% consistent with the Paris Agreement, in support of low-carbon and climate-resilient development and related public policies (AFD, 2017).

Relevant UNFCCC mechanisms

The UNFCCC process has several commitments and mechanisms on international public finance for addressing climate change. At the 15th Conference of the Parties to the UNFCCC (COP 15) in 2009, and reiterated in decisions since, developed countries committed to a goal of jointly mobilising $100 billion a year in climate finance from both public and private sources by 2020 to support developing countries (UNFCCC, 2010: COP Decision 2/CP.15).

The Paris Agreement's Article 9 reiterates that 'developed countries'[8] will continue their previous climate finance commitments under the Convention (Article 9.1), encourages other countries to also provide support (Article 9.2), agrees to continue developed countries' existing collective mobilisation goal of $100 billion a year until 2025 and commits to setting a new collective quantified finance goal prior to 2025 (UNFCCC 2016: COP Decision 1/CP.21, paragraph 53). The Article also emphasises the need to mobilise finance through public funding, with developed countries taking the lead (Article 9.3), and includes a goal for balancing finance between mitigation and adaptation, considering country-driven strategies, priorities and needs (Article 9.4).

A number of multilateral funds have been mandated to support the UNFCCC: the Global Environment Facility and Green Climate Fund (GCF) as the Operating Entities of the Financial Mechanism of both the Convention and the Paris Agreement; the Least Developed Countries Fund and Special Climate Change Fund that serve both the Convention and the Paris Agreement; and the Adaptation Fund that serves the Kyoto Protocol and will serve the Paris Agreement. Though currently comprising only a relatively small share of public climate finance, these funds can play an important role in driving action to mobilise and align finance given their climate-specific mandates, inclusivity and legitimacy, and the fact that they can take risks other financing institutions are unable to (Amerasinghe et al., 2017).

The GCF in particular has a mandate to 'promote the paradigm shift towards low-emission and climate-resilient development pathways by providing support to developing countries' (UNFCCC, 2012: COP Decision 3/CP.17) – the language of which is strikingly similar language to Article 2.1c (it predates the Paris Agreement by five years). Given this, GCF investments could help pioneer innovative approaches to aligning finance to support transformative climate action. In addition to ensuring its own portfolio supports Article 2.1c, the fund has also agreed that when considering re-accreditation of its accredited entities (which includes major public and private financial institutions) it will assess the extent to which their entire portfolios have evolved towards the GCF's mandate (GCF, 2015: Decision B.11/10 paragraph 35). This gives the GCF the potential to influence investments several magnitudes larger than those of its own portfolio (Thoma et al., 2016).

3.4 Using information instruments to increase transparency and establish standards

Information instruments raise awareness, promote learning, shift behaviour and stimulate product and business development, including by making climate risks and opportunities clearer. They include learning platforms and industry associations, voluntary standards and reporting initiatives (UN PAGE, 2016a) (see Table 1). Unlike the three categories of instruments already outlined, information instruments can be created and deployed not only by governments, but also by businesses, investors and civil society. From the perspective of governments, in some instances, these kinds of instruments can be a first step in a longer-term process of developing policies and regulations, including examples where voluntary standards and reporting have set the stage for the development of mandatory systems.

There has been a significant expansion of learning networks on the topic of climate-compatible investment, enabling capacity building, the facilitation of knowledge-sharing

8 The Paris Agreement refers to 'developed country Parties' and 'developing country Parties' but does not specify which countries are included in which group. In the context of Article 9.1, which refers to developed countries' 'existing obligations under the Convention', it could be taken to refer to Annex II Parties who have a legal obligation under Article 4.3 of the UNFCCC to provide finance to support developing countries in implementing climate action. However, the commitment to mobilise $100 billion a year by 2020 (Decision 1/CP.16, paragraph 98) also refers to 'developed countries' and, in reporting on progress towards the goal, some non-Annex II Parties who are Annex I Parties have included themselves in this group (DFAT, 2016a), so it could potentially refer to Annex I more broadly.

on environmental and financial risk, and improvement in the measurement of green finance activities. The private sector has been engaged in and driven many of these initiatives and innovations, representing progress made towards greening of the financial system (Watson and Schindler, 2017). There is also the emergence of voluntary standards for climate compatible investment, including standards for green bonds and climate bonds (sovereign and corporate). Standards that are not formally binding may nevertheless command authority – either because they facilitate certain regulatory procedures if met or because they are widely recognised by large-scale purchasers or consumers (UN PAGE, 2016b).

Examples of use of information instruments towards Article 2.1c

- In **2015**, the Financial Stability Board (FSB)[9] launched the industry-led Task Force on Climate-related Financial Disclosures (TCFD) to develop a framework for companies to disclose their climate-related risk in financial filings provided to investors, lenders, insurers and other stakeholders (FSB, 2018) (see also sections 4.2 and 5.2).
- In **2016**, the Green Finance Committee of the China Society for Finance and Banking within the People's Bank of China was established and began developing green finance standards, approaches for evaluation and environmental risk analysis. The committee has also supported capacity-building and training on green finance (IIGF, 2017).
- In **2017**, Japan's Ministry of the Environment released non-binding green bond guidelines and the Metropolitan Government of Tokyo announced plans for issuing green bonds (UNEP, 2017). (Note: once issued, these Tokyo government bonds would be included under the category of fiscal instruments.)
- In **2017**, the Swiss government initiated a voluntary programme through which all Swiss pension funds and insurance companies could voluntarily have their portfolios of stocks and corporate bonds tested for their compatibility with the Paris temperature target, with the goal of enhancing the awareness of the actors in the sector on the carbon exposure of their portfolios (BAFU, 2017).
- In **2018**, International Organization for Standardization (ISO)[10] launched a standard (ISO 14097), to provide a common framework and principles for governments and businesses to assess and report on investments and financing activities related to climate change and help them develop consistent, compatible and comparable policies and measures (ISO, 2018) (see also section 4.3).
- In July **2018**, six sovereign wealth funds, representing more than $3 trillion in assets, made a voluntary pledge to invest in only companies that incorporate climate risks into their strategies and have published a non-binding framework to this end (IFSWF, 2018).

In addition, as outlined in section 3.1, the EC has proposed the creation of a new category of benchmarks that will help investors compare the carbon footprint of their investments (EC, 2018).

Relevant UNFCCC mechanisms

There are many elements of the UNFCCC architecture, including the biennial reporting under the Cancun framework and the enhanced transparency framework of the Paris Agreement, which allow for documentation of voluntary activities by state and non-state actors (including through information instruments). These are outlined in more detail in Chapters 4 and 5.

9 The FSB has 68 member institutions, comprising ministries of finance, central banks, and supervisory and regulatory authorities from 25 jurisdictions as well as 10 international organisations and standard-setting bodies, and 6 regional consultative groups reaching out to 65 other jurisdictions around the world (FSB, 2017).

10 ISO is an independent, non-governmental international organisation with a membership of 162 national standards bodies.

4 Tracking progress

Critical to meeting the objective of 'making finance flows consistent with low greenhouse gas emissions and climate resilient development' will be processes to track progress on this objective. However, as a large number of interacting factors will determine whether or not finance is 'aligned' or 'consistent' with low-greenhouse gas and climate-resilient development, no single data point can capture the rate of progress nor scale of change required. In addition, Article 2.1c's reference to 'finance flows' is vague, may include any economic transaction and could be measured through a range of indicators, including stocks of financial assets, assets under management by institutional investors, gross domestic product (GDP), and gross fixed capital formation (GFCF) (Mirabile and Jachnik, forthcoming). To date, however, governments have not coalesced around one or more approaches for determining if and how the objective of Article 2.1c has been met.

Over the short and medium term, it will be vital for governments and other actors to know if they are on the right track – both in terms of the actions they need to take and how and where finance is beginning to align with the Paris goals (i.e. tracking both actions taken and finance shifted or mobilised). While agreeing on a single metric that would be sufficient to determine whether Article 2.1c had been met is unlikely, this Chapter outlines a range of existing and potential approaches relevant to tracking action on and progress towards this goal. Building on the previous sections, which discussed the role of regulation, fiscal policy, public finance and information instruments in shifting finance, we now outline potential approaches for tracking action in each of these four categories.

This Chapter does not present a methodology for tracking action on and progress towards Article 2.1c, nor does it seek to assess whether current finance is in line with Paris objectives. Rather, it provides: (1) a framework for organising potential metrics and sources of information; (2) leading case studies of where tracking is already taking place both within and outside of the UNFCCC; and (3) an overview of emerging methods and metrics for tracking the consistency of finance with Paris objectives.

4.1 Potential approaches for tracking progress towards Article 2.1c

As outlined in Chapter 3, there are several government tools for making finance consistent with low greenhouse gas (GHG) emissions and Table 2 below builds on this taxonomy of tools to provide examples of corresponding metrics. Many of these are designed for a global collective assessment of progress but some can be applied within individual countries or institutions. As the table illustrates, there are several approaches for the tracking of action (by actors at the sub-national, national or international level) that are deploying these tools, several of which track specific resulting shifts in finance. The following section outlines these approaches in more detail and, for each, where processes inside and outside of the UNFCCC already support such tracking.

Table 2 does not seek to provide a comprehensive or prescriptive list, but rather to illustrate examples approaches for tracking progress. Furthermore, this section does not seek to provide a comprehensive review of metrics for tracking wider private finance flows (or stocks) mobilised or shifted based on deployment of these tools. However, it will be necessary to develop ways to more accurately measure outcomes in terms of how global capital is aligned to be compatible with climate goals – which groups including the OECD Research Collaborative on Private Climate Finance and the Climate Policy Initiative (CPI) are currently working on (Mirabile and Jachnik, forthcoming; Oliver et al., forthcoming). In addition to tracking actions, it is also necessary to assess effectiveness, and this is an important area for further research (see section 6.2).

Table 2 Potential approaches for tracking progress on Article 2.1(c) and existing sources of information

Tool	Example actions	Potential metrics	Current sources of information
Financial policy and regulation	Mandating climate related disclosure policies	Number (or percentage) of countries mandating climate related disclosure (or by level of emissions that these countries represent) (see also Table 4)	OECD, Climate Disclosure Standards Board (CDSB). Climate Change Disclosure in G20 Countries (OECD, 2015b) Taskforce on Climate Related Financial Disclosures List of government supporters of the Taskforce for Climate-related Financial Disclosure recommendations (TTCFD, 2018) Baker-McKenzie and PRI, Climate Disclosure Country Reviews, Recommendations of the FSB Task Force on Climate-related Financial Disclosures (Baker McKenzie, 2017) FS-UNEP Collaborating Centre for Climate & Sustainable Energy Finance and WWF Germany, 3fP Tracker (currently for Germany and EU, to be expanded) (WWF, 2018)
Fiscal policy and public budgets	Establishing carbon pricing mechanisms (taxes and prices)	Effective carbon rate at national (or sub-national level)	OECD (2018) Ecofys and World Bank (2018)
	Phasing out fossil fuel subsidies	Scale of fossil fuel subsidies (and scale of renewable subsidies)	OECD (2018) IEA (2018) Future tracking of SDG indicator 12.1.c (amount of fossil fuel subsidies per unit of GDP – production and consumption – and as a proportion of total national expenditure on fossil fuels)
	Developing and implementing fiscal policies to support increased resilience	Scale of subsidies or other fiscal incentives for resilience	No available source identified
	Structuring and issuing sovereign green bonds	Scale and number of sovereign green or climate bond issuances (number of issuers, scale of total issuances)	Climate Bonds Initiative (2018)
	Including climate considerations in national budget and expenditure framework	Number (or percentage) of countries including considerations of climate alignment in national budgets (or level of emissions that these countries represent)	Budgeting for climate change: how governments have used national budgets to articulate a response to climate change (Governance of Climate Change Finance Team of the UNDP Bangkok Regional Hub, 2015)

Tool	Example actions	Potential metrics	Current sources of information
Public finance	Establishing policies restricting fossil fuel finance	Number (or percentage) of countries (or public institutions) with policies restricting fossil fuel finance (or level of emissions that these countries represent)	Oil Change International (2017)
	Increasing climate aligned investments	Scale of public finance for mitigation and adaptation (by public institution, government, etc.)	Oil Change International (2017) Joint Report on Multilateral Development Banks' Climate Finance (AfDB, 2018) Biennial Assessment and Overview of Climate Finance Flows (UNFCCC, 2016b; 2018f) IDFC Green Finance Report (IDFC, 2018a)
	Governments divesting public funds from fossil fuel investments	Value (or number) of public institutions with commitments to divest from fossil fuels	Arabella Advisors (2018)
Information instruments	Assessing and disclosing climate related risks (voluntary)	Scale of assets under management of institutions (public or private) conducting voluntary climate risk assessments or disclosing climate risk information	PRI reporting mechanism (PRI, 2018)
	Developing and implementing green or climate bond standards (voluntary)	Scale and number of corporate green or climate bond issuances (number of issuers, scale of total issuances)	Climate Bonds Initiative (2018)
	Developing national green finance strategies	Number (or percentage) of governments (national or sub-national) with green finance strategies	No available source identified (could emerge through Financial Centres for Sustainability)
	Reducing level of carbon exposure of an investment portfolio (voluntary)	Level of carbon exposure of privately held investment portfolios	2° Investing Initiative PACTA project (2°ii, 2018) The Morningstar Portfolio Carbon Risk Score (Morningstar, 2018) UNEP FI and CDP Portfolio Decarbonisation Coalition (UNEP FI, 2018)

Note: DFIs=development finance institutions; PACTA=Paris Agreement Capital Transition Assessment.

Relevant UNFCCC mechanisms

The primary means for tracking progress under the Paris Agreement will be through the enhanced transparency framework set out in Article 13. This includes a requirement that all countries must report biennially 'information necessary to track progress made in implementing and achieving nationally determined contributions' (Article 13.7b). While there is no requirement for NDCs to include information on Article 2.1c, countries could voluntarily consider including information on how they intend to support the alignment of finance with the mitigation and adaptation actions set out in their NDCs (see also sections 3.1 and 5.1). Countries would then be able to report on progress towards this in their biennial transparency reports. Even countries that choose not to include Article 2.1c-related commitments in their NDCs could voluntarily include information on actions to align finance as part of the information on their national circumstances. And the Global Stocktake (see section 5.1) offers further opportunity to assess progress and share lessons at a collective level, enabling a wider number of actors beyond Parties to participate.

On finance specifically, developed countries[11] are required to report on their provision and mobilisation of finance to support developing countries to implement climate action (other countries that provide finance encouraged to do likewise) (Articles 9.7 and 13.9). The transparency framework could allow for reporting on how support provided contributes to the achievement of Article 2.1c (Elliot et al., 2017). Though this may not be mandatory, reporting in this way would help increase the link between provision of public support and efforts to align all finance.

Article 13 also states that developing countries[12] should report on financial, technology transfer and capacity-building support needed and received (Article 13.10) and, for support received, are requested to include information on 'the use, impact and estimated results thereof' (UNFCCC, 2016: COP Decision 1/CP.21, paragraph 94(d)). Developing countries could voluntarily use this opportunity to explain how support has been used to make finance consistent with low-emission and climate-resilient development pathways. They could also include information on how international support and investment interacts with domestic public spending and private investment in making finance consistent. In reporting on support needs, developing countries could identify specific policy and capacity-building support needed to operationalise Article 2.1c in line with their NDCs and long-term strategies (the reporting of which may in itself require additional capacity-building support). The Capacity Building Initiative for Transparency could consider needs and means to support developing country Parties to include information on Article 2.1c in their biennial transparency reports.

4.2 Key current examples of tracking progress towards Article 2.1c

Within and outside the UNFCCC, there are several forums and initiatives currently tracking progress on shifting and mobilising finance towards low-emission and climate resilient development across the public and private sectors (see end of this section). The UNFCCC provides the primary international commitment and mechanism for governments to report on their climate actions and can therefore also be one of the main forums to track progress towards the implementation of Article 2.1c. However, while the UNFCCC includes tracking provisions for public finance provided and private finance mobilised for climate action in developing countries, there are currently no requirements to track broader finance.

The balance of this section will look more closely at how and where different institutions are already tracking action on Article 2.1c, with a focus on the different key government tools outlined in Figure 3 and Table 1: regulation, fiscal policy, public finance, and information instruments.

11 See footnote 8.

12 See footnote 8.

Financial policy and regulation

Although Table 2 outlines several potential approaches for tracking the design and implementation of financial policies and regulations to support alignment of finance with the Paris goals, ongoing activities to track this progress has been limited. One-off studies on this topic that could be replicated include the UNEP Inquiry's Green Finance Progress Report (linked to the G20 Green Finance Study Group), which was published in 2017 (UNEP, 2017).

Fiscal policy and public budgets

Several countries have implemented fiscal policy levers to shift finance. For example, the EC has committed to removing subsidies for hard coal mining by 2018, while EU Member States have committed to begin developing plans for phase-out by 2020 (Gencsu et al., 2017). Perhaps the most widely reported metrics for tracking progress on fiscal policy are the value of both fossil fuel and renewable energy subsidies. In 2018, an OECD and IEA review of 76 countries (responsible for 94% of global CO2 emissions) estimated support to fossil fuels at $373 billion in 2015 (OECD, 2018c). Parallel research by the IEA found that subsidies for renewables in power generation amounted to $140 billion in 2016 (Shirai and Adam, 2017).

Other metrics for tracking progress on fiscal policy include those relating to carbon pricing – for example the number of countries adopting a carbon price, and the coverage of carbon pricing in terms of GDP and emissions. As of April 2018, the World Bank Group reported on 45 countries with a price on carbon – nearly double the number of countries five years ago (World Bank and Ecofys, 2018). The OECD has also developed an 'effective carbon rate' metric for 42 OECD and G20 countries, covering 80% of world emissions, based on a review of specific taxes on energy use, carbon taxes and tradable emission permit price (OECD, 2018a).

In terms of their inclusion in NDCs, a forthcoming study found 88% (156 out of 176 NDCs examined) make some form of positive reference to the use of domestic or international fiscal instruments in achieving the mitigation contribution of the NDC (Gass et al., 2018). Work to track the balance of spending through public budgets focused on climate compatible activities (and fiscal policy beyond the energy sector) has so far been more limited. However, there is significant scope for tracking progress on these measures, which could be included in biennial transparency reports on action taken to achieve NDCs.

Public finance

Levers to align public finance with low GHG emissions and climate-resilient development include: MDBs and development finance institution (DFI) policies to reduce fossil fuel financing; policies and targets for climate-aligned investments; the adoption of positive and negative lists for investment decision-making; and inclusion of climate in the national budget and expenditure framework. International finance institutions (IFIs) can apply criteria to evaluate climate-related investments. These criteria include positive lists of investment priorities in low-emissions technologies, industries or sectors, while negative lists could delineate technologies or sectors excluded from financing (Höhne et al., 2017). Like the financial policy and regulation category, relevant metrics may include the number or percentage of institutions and the budget of institutions with policies aligning investments with Paris objectives.

MDBs and NDBs that are members of the International Development Finance Club (IDFC) both track their climate finance (see also section 5) (AfDB, 2017; IDFC, 2018b). In 2016, IDFC members (comprising 23 international, national and sub-regional development banks) contributed $220 billion in green finance, of which $196 billion was characterised as climate finance (IDFC, 2018a). Of this $159 billion, 96% supported green energy and other mitigation efforts, with only $5 billion going to adaptation projects (and $1 billion to projects with both mitigation and adaptation elements). In 2017, the six major regional and MDBs[13] committed $35 billion in climate finance, 79% of which

13 African Development Bank (AfDB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), European Investment Bank (EIB), Inter-American Development (IDB) and World Bank Group (WBG).

supported mitigation, with only $7.4 billion supporting adaptation (AfDB et al., 2018). Most of this climate finance from MDBs was provided in the form of investment loans (81% or $28.4 billion), while policy-based loans accounted for 6%, and grants and guarantees each accounted for 4% of total climate finance. To better support the tracking of progress against Article 2.1c, MDB and DFI reporting should also look beyond climate-specific financing to how well their overall portfolios are aligned with the Paris Agreement (Christianson et al., 2017; Larsen et al., 2018).

In addition to the tracking by groups of public finance institutions, the CPI publishes reports biennially on the 'Global landscape of climate finance', which include data on public finance to renewables, energy efficiency and sustainable transport, building on other key international data sets such as those of Bloomberg New Energy Finance (BNEF), OECD and surveys with public finance institutions (Buchner et al., 2017). Other initiatives have reported on high-carbon finance (to oil, gas and coal) by public finance institutions, and on net public energy finance, indicating the volume of finance that supports fossil fuel vs support to clean energy and energy access (OCI, 2017; CAFOD, 2017; Scott and Murali, 2018).

Multilateral climate fund reporting is also useful, both to determine the alignment of these portfolios with Article 2.1c and to learn lessons from their own efforts to assess alignment. For example, the GCF board's decision to assess the efforts of its accredited entities to align their broader portfolios with the GCF's goals when considering their reaccreditation could yield important lessons and potential methodologies for assessing alignment with Article 2.1c (Thoma et al., 2016).

In terms of existing tracking linked to the UNFCCC, information on finance from developed countries' biennial reports (mandated under the Cancun Agreements and to be superseded by biennial reporting through the Paris Agreement's enhanced transparency framework, as previously described) is synthesised, assessed and contextualised in the SCF's Biennial Assessment and Overview of Climate Finance Flows (BA). The latest BA shows public climate finance from developed to developing countries as reported in their biennial reports was $38 billion in 2016, while overall climate finance flows are estimated at $681 billion in 2016 (UNFCCC, 2018e). Although the focus of the BA has thus far been on climate finance, there has been some recognition of the need to look more broadly. The 2016 BA contextualised climate finance data with a brief analysis of economic losses from natural catastrophes, the costs of energy actions in intended nationally determined contributions (INDCs), fossil fuel energy investments, infrastructure finance needs, real estate assets at risk from climate impacts and global assets under management (UNFCCC, 2016b). The 2018 BA includes a chapter on information relevant to Article 2.1c, which explores datasets on finance flows and stocks and how they integrate climate change considerations (UNFCCC, 2018e). The COP could consider including specific guidance to progressively enhance the SCF's work on tracking progress towards Article 2.1c, including in future BAs. If not the BA, another avenue for providing the broader finance information that will be necessary for the Global Stocktake may need to be considered.

Information instruments

There are several opportunities for tracking progress in the development and uptake of voluntary guidance, voluntary reporting standards, and of non-binding strategies and plans for aligning finance (see Table 1). Current metrics in place include the scale and number of green (or climate) bond issuances and the value (and number) of institutions with commitments to divest from fossil fuels (see Table 2).

Metrics at an economy level could include assets under management for financial institutions providing climate-related disclosures on a voluntary basis. Although there is not yet tracking for companies undertaking disclosure in line with the recommendations of the FSB's TCFD (see section 5.2), support for the Task Force is currently measured by the endorsement of 500 companies, with market capitalisations of more than $7.9 trillion, and includes financial firms responsible for assets of nearly $100 trillion (FSB, 2018). Another indicator is that 279 investors with almost $31 trillion in assets under management have signed up to the Climate Action 100+ initiative to engage systemically important GHG emitters to curb emissions (Climate Action 100, 2018).

Other relevant metrics could include the number and market capitalisation of exchanges with climate or sustainability-related principles. The UN's Sustainable Stock Exchanges (SSE) initiative is a peer-to-peer learning platform that enables exchanges, in collaboration with investors, regulators, and companies, to explore how they can enhance corporate transparency – and ultimately performance – on ESG (environmental, social and corporate governance) issues and encourage sustainable investment (SSE Initiative, 2018). Under the SSE initiative, 68 out of 84 stock exchanges have made a public commitment to promote sustainability in their markets. Future metrics at the portfolio or stock-exchange level could include investors reporting on portfolio carbon exposure.

4.3 Wider approaches for determining consistency of finance with Paris Agreement objectives

While countries and financial actors have, as outlined, developed several metrics that are relevant to tracking progress on Article 2.1c, few to date have explicitly sought to answer the question of what underlying activities should be considered consistent or inconsistent with a pathway towards low-emission and climate-resilient development. This section provides an overview of the different initiatives that aim to address this question. Further information on work to determine what might be considered aligned with the Paris Agreement goals (including information on the different scenarios developed by the International Energy Agency, IPCC, United Nations Environment Programme, International Renewable Energy Agency, Greenpeace etc.) can be found in Germanwatch and New Climate Institute (2018) and Mirabile and Jachnik (forthcoming).

As the first proposed climate finance standard, ISO 14097 has been designed to assist with reporting on investments and financing activities related to climate change (see also section 3.4). The tool was proposed by the French standardisation body Association Française de Normalisation (AFNOR) and co-chaired by the UNFCCC Secretariat. The objectives of ISO 14097 are to: track the impact of investment decisions on GHG emissions; measure the alignment of investment and financing decisions with low-carbon transition pathways and the Paris Agreement; and identify the risk from international climate targets or national climate policies to financial value for asset owners. A secondary objective is to develop a framework for the management of climate-related risks associated with different climate scenarios. The standard will help define benchmarks for decarbonisation pathways and goals, and track progress of investment portfolios and financing activities against those benchmarks; identify methodologies for the definition of science-based targets for investment portfolios; and develop metrics for tracking progress.

A second initiative, Sustainable Energy Investment (SEI) Metrics, funded by an EC Horizon 2020 grant and developed by the 2° Investing Initiative, was launched in 2016 as a free, open-source tool and has since tested $500 billion of equity for 2°C alignment (SEI Metrics, 2018). SEI Metrics covers a limited number of sectors with public equity and corporate portfolios. The project closed in February 2018 and was relaunched as Paris Agreement Capital Transition Assessment (PACTA), now run by the 2° Investing Initiative. PACTA aims to measure the current and future alignment of investment portfolios with a 2°C scenario analysis, allowing investors to measure climate performance and address the challenge of shifting capital towards clean energy investments. It is important to note that the Paris Agreement calls for greater ambition than that which would be captured by 2°C scenarios, given it aims to limit the increase in global average temperatures to well below 2°C, and ideally 1.5°C above pre-industrial levels.

Initiatives are also developing new methodologies that are relevant to this agenda. For example, the Science Based Targets initiative (SBTi) is currently creating methods and implementation guidance to support financial institutions to set science-based targets for their investing and lending activities (Cumis et al., 2018). In addition, as outlined in section 3.1 and Table 3, the EC made a set of legislative proposals, which included establishing a unified EU classification system ('taxonomy') of sustainable economic activities. This taxonomy will be developed by a technical expert group on sustainable finance comprising 35 members from civil society, academia, business and the finance sector, as well as additional members and observers from EU and international public bodies (EC, 2018b). It is understood that other (non-EU) countries have expressed willingness to use the taxonomy once it is complete.

5 Raising ambition

5.1 Key elements of the UNFCCC architecture supporting increased ambition towards Article 2.1c

The Paris Agreement establishes a cycle by which countries plan and communicate actions ahead of time, report on their progress in implementing them and finally review progress and identify further action needed (Dagnet et al., 2018). This cycle is key to increasing ambition to meet all the Paris Agreement goals, including Article 2.1c.

Global Stocktake

Under the Paris Agreement, the Global Stocktake will take place every five years and has a mandate to 'assess the collective progress towards achieving the purpose of this Agreement and its long-term goals' (Article 14.1). Article 2.1c is one of the three long-term goals of the Paris Agreement, and as such, assessment of progress towards achieving it is a critical component of the Stocktake. This is in addition to, and not in place of, a consideration of means of implementation and support under the Global Stocktake. However, key questions remain about how this process will happen, what information sources it will draw on and what the outcomes will be (Northrop et al., 2018); further research on this will be important.

There are many potential inputs to the Global Stocktake, relevant for assessing progress towards achieving Article 2.1c. The Paris Agreement and its accompanying decisions make clear that information on mobilisation and provision of support (see section 4.2), from nationally determined contributions (NDCs) and IPCC reports will be sources of input (Decision 1/CP.21, paragraph 99). However, to enable a fuller discussion on Article 2.1c under the Global Stocktake, a broader range of inputs will be needed. The Agreement states that the Global Stocktake 'shall take into account the relevant information provided by developed country Parties and/or Agreement bodies on efforts related to climate finance' (Article 9.6), which includes adaptation communications, ex ante communications on finance (see herein), the SCF Biennial Assessment, and reporting from funds that serve the Agreement (Northrop et al., 2018). To ensure it can comprehensively assess global finance, the global stocktake should also draw on inputs from outside the UNFCCC, and on outside processes that increase ambition on key aspects of Article 2.1c (see section 5.2).

Currently, much of the reporting and communications relevant to assessing progress on Article 2.1c is biennial. Given that the Global Stocktake will only take place every five years, and the urgency of the need to realign finance, it may be beneficial to have a biennial process to consider progress towards and enhancement of ambition on Article 2.1c. This could be anchored around a biennial high-level ministerial dialogue, to which finance ministers might be encouraged to attend in order to elevate and broaden the discussion (Dagnet et al., 2018; Bodle and Noens, 2018). Outputs from such a process could then inform the Global Stocktake.

Drawing on this wide variety of inputs, the Global Stocktake could use the Talanoa Dialogue's three framing questions[14] to assess progress and provide outputs necessary to catalyse ambition (Northrop et al., 2018):

- **Where are we?** Assess current state of finance flows and efforts to shift them (drawing on ex post information on actions and finance)

14 The Talanoa Dialogue (also called the facilitative dialogue) is designed to take stock of the collective efforts of Parties in relation to progress towards the long-term mitigation goal and to inform the preparation of NDCs (UNFCCC 2016: COP decision 1/CP.21, paragraph 20).

- **Where do we need to go?** Identify low-GHG and climate-resilient development pathways (drawing on IPCC and other scenarios)
- **How do we get there?** Identify potential additional actions needed to make finance consistent. These could be considered by Parties and used to inform more ambitious commitments. The stocktake can also provide recommendations to non-Party stakeholders, including investors and businesses, on further action and information needed to raise ambition.

Informed by the outputs of the Global Stocktake, there are a variety of potential vehicles that Parties could use to signal increased ambition in the context of Article 2.1c, particularly NDCs, but also their finance and adaptation communications.

Nationally determined contributions (NDCs)

The Paris Agreement, in referring the NDCs, states that 'efforts of all Parties will represent a progression over time' (Article 3). This signals clearly the need for successive NDCs to raise ambition. Given their country-driven nature, there is an opportunity for governments to include finance-related commitments in future NDCs. While few developed countries discussed finance in their NDCs, many developing country NDCs include references to finance. This has tended to be in the context of financing needs: nearly all the 79% of NDCs that include conditional elements reference a need for finance. Of these conditional NDCs, 57% quantify their finance needs, with many developing countries emphasising international public finance: more than 30 conditional NDCs mention climate finance mechanisms, and a similar number reference the GCF as a specific potential source of support. Some 16% of conditional NDCs specify the share or amount of finance from domestic budgets that they will aim to mobilise and 13% reference private sector financing. All countries could do more to elaborate the financing strategies for implementing their NDCs (Weischer et al., 2016).

The Paris Agreement requires countries provide 'information necessary for clarity, transparency and understanding' of their NDCs (Article 4.8) and, in this context, countries could explain their use of any of the tools identified in section 3, as applicable, to deliver their NDC commitments. For example, a country could include information on efforts to implement carbon pricing, phase out fossil fuel subsidies or mandate corporate climate risk reporting (see section 4.2).

Ex ante finance communications

Ex ante finance communications to be submitted biennially by developed countries, and encouraged of other countries that provide finance, will include indicative, forward-looking information on provision of public finance and what mobilisation of other resources this is intended to achieve (Article 9.5). There is an opportunity here for countries to describe how such funding will be designed so as to align other finance flows to be consistent with low-emissions and climate-resilient development. Communications could also include information about the policies and practices that countries will be undertaking to shift broader international investment flows to support more ambitious climate action (Dagnet et el., 2018).

Adaptation communications

The Global Stocktake is mandated to 'review the adequacy and effectiveness of adaptation and support provided for adaptation' (Article 7.14c). In this context, it could look at how well such support is helping make all finance consistent with climate resilient development pathways. A related adaptation provision of the Paris Agreement calls on Parties to:

> Submit and update periodically an adaptation communication, which may include its priorities, implementation and support needs, plans and actions, without creating any additional burden for developing country Parties. (Article 7.10)

As set out in the Paris Agreement, adaptation communications can be produced in conjunction with a Party's other communications or submissions, so could form part of the NDC (Dagnet et al., 2018). Adaptation communications provide further opportunity for countries to elaborate on more ambitious actions they will take to align finance to support climate resilience, and any support needs to advance this, which can be a means to raise attention, both domestically and internationally, of how finance needs to be aligned to support resilience efforts.

Long-term strategies

Countries have been asked to communicate long-term (mid-century) low GHG-emission development strategies, 'mindful of Article 2' by 2020 (Article 4.19; UNFCCC, 2016: COP Decision 1/CP.21, paragraph 35). These strategies provide an opportunity for countries to present a vision and approach to aligning their national actions with the global ambitions of the Paris Agreement. Given the reference to Article 2, countries could include an exploration of how finance will need to be aligned to achieve the strategy, which would have potential links to Article 2.1c. As of October 2018, 10 countries had submitted their long-term strategies (in order of submission: Mexico, the United States, Canada, Germany, Benin, France, Czech Republic, United Kingdom and Ukraine) (UNFCCC, 2018f). Their discussion of finance and Article 2.1c varies significantly, including references to considering climate in public and private investments, how the strategies can provide market signals to shift investments, finance mobilisation needs to support implementation of the strategy, subsidy reform (Ross and Fransen, 2018), finance provision (both past and future commitments), efforts to grow green financing, and the need for long-term finance strategy to prioritise and target funding. A key area for further research will be whether and how the process of developing 2050 strategies has led to changes in policy-making or investment environments necessary for making finance consistent with climate goals.

5.2 Key initiatives beyond UNFCCC supporting increased ambition towards Article 2.1c

As referenced in the previous section, there is a need for the Global Stocktake to draw on inputs from outside the UNFCCC. This section outlines several of the initiatives that are involved in raising ambition on the greening or sustainability of the financial system (see Table 3), and which can positively reinforce the raising of ambition in NDCs and other communications under the UNFCCC and vice versa. For example, initiatives that are accelerating the investment in research and development for clean energy and innovation can lead to reductions in the costs of renewable energy, and this in turn could make it easier for governments to raise ambition in their NDCs under the UNFCCC (IRENA, 2017; IRENA, 2018). Furthermore, the commitment of governments to more ambitious NDCs in the UNFCCC also sends a signal within the capital markets and can help catalyse private-sector investments.

It is notable that these initiatives are working on different tools that can be used to shift and mobilise finance (see section 3) and may also support tracking progress (see section 4). We have categorised the initiatives according to the four sub-categories used in Section 3: financial policy and regulation, fiscal policy, public finance and information instruments (Table 3). However, we recognise that some cross multiple categories and all are often mutually reinforcing.

Financial policies and regulation

In terms of international financial regulations, in 2015 the G20 asked the Financial Stability Board (an international body that monitors and makes recommendations about the global financial system) to consider climate risk. In response the FSB launched the industry-led Task Force on Climate-related Financial Disclosures (TCFD) to develop recommendations on climate-related financial disclosures (FSB, 2018). The recommendations are currently voluntary (see section on voluntary instruments), but governments are now discussing how to support or mandate these to drive a system-wide shift. See Table 4 for information on the different measures in place and under development across G20 governments to implement the recommendations of the TCFD (see Section 3 for details on processes in China, France, Japan and the EU).

Other key initiatives include the Network of Central Banks and Supervisors for Greening the Financial System (Banque de France, 2018) and the Sustainable Banking Network – an informal group of bank regulators and banking associations that have an interest in environmental and social risk management and green lending (IFC, 2018). Other relevant bodies which work on international financial regulation or standard-setting include the International Monetary Fund (IMF) and the Bank for International Settlements (BIS), which hosts international organisations engaged in standard setting through the Basel process (BIS, 2018). IMF has been involved in helping countries macroeconomic (and fiscal) responses to climate change (IMF, 2018).

Fiscal policy and public budgets

In terms of governmental initiatives, the Carbon Pricing Leadership Coalition provides a platform for government, business and civil society leaders to exchange experience,

Table 3 Examples of international (or multi-country) initiatives beyond the UNFCCC to raise ambition on the goals of Article 2.1c

Tool	Examples of initiatives, campaigns and key actors
Financial policies and regulations	• EU Sustainable Finance Action Plan, which is the EU's response to the High-Level Expert Group on Sustainable Finance (EU HLEG) (led by the EU Directorate-General for Financial Stability, Financial Services and Capital Markets Union) • EU Technical Expert Group on Sustainable Finance (TEG) (led by the EU Directorate-General for Financial Stability, Financial Services and Capital Markets Union) • Network of Central Banks & Supervisors for Greening the Financial System (led by Banque de France) • IFC Sustainable Banking Network (members are financial sector regulatory agencies and banking associations – led by International Finance Corporation of World Bank Group)
Fiscal policy and public budgets	• Carbon Pricing Leadership Coalition (supported by the World Bank Group – partners are governments, businesses and civil society) • Paris Collaborative on Green Budgeting (led by OECD) • Friends of Fossil Fuel Subsidy Reform (FFFSR) (supported by is the Global Subsidies the Initiative of International Institute for Sustainable Development (IISD)– members are 9 governments) • Climate Action Peer Exchange for Finance Ministries (CAPE) (led by the World Bank Group) • *Investor Agenda – specific calls to governments on ending fossil fuel subsidies and implementing carbon pricing* • *Civil Society 20 (C20) – specific calls to G20 governments on ending fossil fuel subsidies and implementing carbon pricing*
Public finance	• Climate Action in Financial Institutions Initiative (secretariat, Institute for Climate Economics (I4CE)) • IDFC and MDB joint commitments to aligning finance with the Paris Agreement • Powering Past Coal Alliance (PPCA) – commits member countries and states to restrict financing for traditional coal power without carbon capture and storage. • *Big Shift Global – calls for multi-lateral development banks to phase out support to fossil fuels, and shift towards supporting sustainable and renewable energy* • *Civil Society 20 (C20) – specific calls to G20 governments on aligning financial flows with the Paris Agreement and Sustainable Development Goals (SDGs)*
Information instruments	• FSB Task Force on Climate Related Disclosure (TCFD) – recommendations published in 2017 (led by Financial Stability Board) • Asset Owners Disclosure Project (led by Share Action) • Portfolio Decarbonisation Coalition (led by UNEP Finance Initiative) and Montreal Pledge • Climate Action 100+ • Network of Financial Centres for Sustainability (members include green finance associations and initiatives and some finance authorities - led by United Nations Environment Programme) • Divest/Invest – call for investors (including individuals) to move investments quickly from fossil fuels to sustainable energy • PACTA – coordinated international process, of portfolio assessment for institutional investors • *Unfriend Coal – call for insurers to adopt policies not to underwrite any new coal projects, to divest any assets from coal companies, and to scale up their investments in clean energy companies*

Note: campaigns are italicised. This is a non-exhaustive list and some of the initiatives and campaigns are active across multiple categories.

Table 4 G20 approaches to implementing the recommendations of the Task Force on Climate-related Financial Disclosures

	No formal engagement with TCFD	Political and regulatory engagement	Formal engagement with private sector	Publication of guidelines and action plans	Encoding into law
Argentina	✓				
Australia		✓	✓		
Brazil		✓			
Canada		✓	✓		
China		✓			
EU		✓	✓	✓	
France		✓			✓
Germany		✓			
India	✓				
Indonesia	✓				
Italy		✓	✓		
Japan			✓	✓	
Republic of Korea	✓				
Mexico		✓			
Russia	✓				
Saudi Arabia	✓				
South Africa		✓	✓		
Turkey			✓		
United Kingdom		✓	✓		
United States		✓			

Source: CISL (2018).

showcase progress, and catalyse action on carbon pricing (CPLC, 2018). Meanwhile, the Paris Collaborative on Green Budgeting was recently launched by the OECD aiming to design new, innovative tools to assess and drive improvements in the alignment of national expenditure and revenue processes with climate goals (OECD, 2018d). In response to G7 and G20 governments committing to phase out fossil fuel subsidies, an informal group of non-G20 countries (the Friends of Fossil Fuel Subsidy reform) has convened with the goal of building political consensus on the importance of fossil fuel subsidy reform (FFFSR, 2018). Civil society groups (including the C20) and major investor groups (including through the Investor Agenda) have also been active in calling for action on implementing carbon pricing and ending fossil fuel subsidies (Investor Agenda, 2018; C20 (G20, 2018)).

Public finance

MDBs and NDBs that are members of the IDFC have both committed to aligning finance with the Paris agreement, and have begun to collectively track their green finance (see section 4) (the current chair of the MDB group is the African Development Bank, and the current chair of the IDFC is Agence Française de Développement) (AfBD, 2017; IDFC, 2018b). With many of the same members from MDBs and NDBs, the initiative on Climate Action in Financial Institutions – which also includes a small number of national and international commercial banks – aims to ‘mainstream’ climate change considerations throughout financial institutions’ operations and investing and lending activities (CAFI, 2018). Finally, the Big Shift Global campaign, along with a number of civil society organisations have been active in pushing public finance institutions to phase out support to fossil fuels, and shift towards supporting sustainable and renewable energy (Big Shift, 2018).

Information instruments

Several initiatives to increase the transparency of finance from investors and companies have emerged. These include initiatives that have also sought increased transparency on climate-related risks and/or emissions reporting, such as the Asset Owners Disclosure Project, CDP (previously the Carbon Disclosure Project) and the previously mentioned TCFD (see sections 3.4 and 4.2).

Investor groups such as Ceres and Share Action have also initiated a number of shareholder resolutions on climate change, which can have breakthrough results – for example, when Exxon was compelled to be more transparent on climate risk (Rushe, 2017). Ceres also leads the Climate 100+, an investor initiative to encourage systemically important GHG emitters to drive the clean energy transition and achieve the Paris Agreement goals (Climate Action 100, 2018).

Within civil society, there are several related initiatives calling on other actors to scale up climate-related finance as well as reduce fossil fuel investments. Notably, the divestment movement, which began as an initiative in university campuses, has initiated various commitments on divesting from fossil fuel assets (Fossil Free, 2018).

These initiatives – public, private and among civil society – have made great inroads. But it may be necessary to build connections between these initiatives so that they become synergetic and mutually reinforcing, and to enable the identification of gaps within the system. Given the scale of the challenge, if we are serious about shifting global finance towards consistency with Paris goals we also need to go further and faster. This will not be a linear exercise, and events such as economic or climate impacts may precipitate rapid changes in the system (CISL, 2015).

6 Next steps for operationalising Article 2.1c

6.1 Next steps within the UNFCCC

There are several opportunities within the architecture of the UNFCCC to drive action, track progress and increase ambition towards Article 2.1c. The Paris Agreement already contains many provisions that countries can and should use to operationalise Article 2.1c – particularly given the nationally determined nature of commitments.

But there are also ways that these provisions can be clarified and developed to more clearly support action towards Article 2.1c, set out in Table 5. As countries develop the Paris Agreement implementing guidelines, and as Parties begin to fulfil their obligations, the suggestions in the right-hand column of Table 5 could be considered as ways to make the Paris architecture better support and deliver on Article 2.1c.

Table 5 Further details on key components of the Paris Agreement – and how they could be enhanced to support action towards Article 2.1c

Paris architecture component	Mandated elements with relevance for Article 2.1c	Potential opportunities to further support Article 2.1c
DRIVING ACTION		
Article 3: nationally determined contributions	Nationally determined and can include 2.1c-relevant contributions	Parties could include information on financial policies, fiscal policies, public finance (domestic and/or international) and information instruments to promote greater alignment of finance and how additional investment needs will be financed.
Article 6: cooperative mechanisms	Article 6 mechanisms can support fiscal policies to help make finance consistent	Article 6 mechanisms are designed to also support policy reforms and create incentives that help shift finance, in addition to generating verifiable emissions reductions.
Article 9: finance mobilisation, financial mechanism and other funds serving the Paris Agreement	Provision and mobilisation of finance is a necessary part of making all finance consistent	• Countries providing and mobilising finance could include support for policies, instruments and capacity building to better align all finance. • The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) could, in its guidance to operating entities of the financial mechanism and other climate funds that serve the Paris Agreement, recommend policies and procedures that support Article 2.1c, including ensuring funds and their implementing entities' portfolios are aligned with Paris goals.

Paris architecture component	Mandated elements with relevance for Article 2.1c	Potential opportunities to further support Article 2.1c
TRACKING PROGRESS		
Article 13: transparency framework	Parties' biennial transparency reports include: • information to track progress on implementing and achieving NDC • information on national circumstances • Parties that provide support include information on finance provided and mobilised • developing country Parties should include information on support needed and received, and the use, impact and results thereof.	In Parties' biennial transparency reports: • Parties that provide support could include information on how provision and mobilisation of support is consistent with Article 2.1c and contributes to the fulfilment of the finance goal • Parties that receive support could include information on how support received has been used to help make finance consistent with Article 2.1c, and on their domestic efforts to contribute to fulfilling the finance goal • Parties that receive support could identify policy and capacity building support needed to further their efforts to make finance consistent with Article 2.1c. • The Paris Committee on Capacity Building and the Capacity Building Initiative for Transparency could consider needs and means to support developing country Parties that need it to include information on Article 2.1c in their biennial transparency reports
SCF Biennial Assessment and Overview of Climate Finance Flows	Overview of international public and mobilised private climate finance and broader public and private finance	• The COP could consider including specific guidance to the SCF to progressively enhance its work tracking progress towards Article 2.1c, including in future Biennial Assessments. • Outside actors could develop reporting metrics countries could use for reporting on actions and support in the context of Article 2.1c.
RAISING AMBITION		
Article 14: Global Stocktake	Article 2.1c is one of the three long-term goals that the Global Stocktake is mandated to assess collective progress towards	• Article 2.1c agreed as a core workstream of the global stocktake in the implementation guidelines. • Development of modalities which allow the assessing of progress towards Article 2.1c in the Global Stocktake. • Identification and call for inputs to the Global Stocktake by international organisations, private sector and specialised non-party stakeholders. • Create a process, perhaps anchored around a biennial high-level ministerial dialogue, to allow more frequent assessment of progress on finance and enhancement of ambition in the context Article 2.1c, which could be an input to the global stocktake. • Outside actors conduct further research on how the Global Stocktake consideration of Article 2.1c could happen, what sources of information it could draw on, and what the outcomes could be.
Article 4.19: mid-century strategies	Mandate to formulate strategies 'mindful of Article 2' – so, scope to include Article 2.1c	• Parties could use their strategies to set out a long-term vision and policy framework for aligning finance to meet their low-GHG-emission development objectives. • Outside actors could research whether and how the process of developing long-term strategies has led to changes in policy-making or investment environments necessary for making finance consistent with climate goals.
Article 7.10: adaptation communications	Communicate 'Adaptation priorities, implementation and support needs, plans and actions'	Elaborate on actions countries will take to align finance to support climate resilience, and any support needs to advance this.
Article 9.5: ex ante finance communications	Indicative information on provision and mobilisation of finance	Include information on how provision of finance will be designed to catalyse broader shifts in finance.

6.2 Next steps beyond the UNFCCC

Based on our interviews (see Appendix 1), there is relatively low awareness of Article 2.1c beyond those government representatives and other organisations actively in the climate negotiations. That said, many actors beyond the Parties to the UNFCCC have been motivated by the overall signal sent by the Paris Agreement on the need to take urgent action to shift finance towards low-emission and climate-resilient development.

Efforts to further engage actors beyond the Parties to the UNFCCC about Article 2.1c specifically, and its implications and opportunities is therefore a critical next step. These wider stakeholders are critical to climate action and to shifting finance at scale, and therefore the UNFCCC process needs to be able to tack account of these efforts. Furthermore, non-Party stakeholders will be key providers of data and analysis necessary for assessing progress towards Article 2.1c. In terms of groups of actors which are closely linked to UNFCCC, the sections 3–5 of this paper showed that there are several different initiatives and coalitions working on raising ambition on consistency of finance with the Paris climate goals.

It is notable that some of these initiatives are at an early stage (with several initiatives recently established post-2015). As such, effective follow-up will involve ensuring these groups deliver on their existing commitments as well as making new Paris-aligned and ambitious commitments. There must also be a focus on

Table 6 Key next steps beyond the UNFCCC processes to support action towards Article 2.1c

DRIVING ACTION
Complete assessments of one or more countries that have established a sustainable (or green) finance roadmap or plan in terms of if (and how) they are deploying the key tools outlined in this report to provide further examples and case studies to support sharing and learning across governments (building on 3fP Tracker analysis for EU and Germany).
Review policies and regulations that are focused on non-financial sectors (energy, infrastructure, housing, manufacturing etc.), but which have been critical to shaping and shifting investment in those sectors (towards low-GHG and climate-resilient development).
Review of current policies and procedures of export credit agencies and what Paris alignment would mean for them.
Review of Paris alignment of NDBs' lending policies and grants provision
TRACKING PROGRESS
Establish well recognised data sets that enable tracking of key metrics of progress towards Article 2.1c – particularly for tracking the implementation of financial policies and regulations (see gaps outlined in Table 2). This must be complemented by data to track the effectiveness of existing initiatives and implementation of current commitments (i.e. scale of actual divestment vs scale of commitments to divest from fossil fuels).
Further development of finance indicators and methodologies for tracking the shift from brown to green finance (tracked against benchmark that includes measures on pace and scale required to stay within 1.5°C temperature limit) and from mal-adaptive to resilient finance (building on work of Climate Transparency Initiative and others).
Develop a template for how MDBs and other DFIs might collectively self-report on Paris alignment – i.e. as part of MDB Joint Reporting and/or IDFC reporting etc. (building on work of E3G, WRI and others).
Develop a common tool to assess the carbon exposure in financial portfolios and conduct a synchronised test of multiple institutional investor portfolios across various countries with strong financial sectors (building on the work of PACTA).
RAISING AMBITION
Develop a leadership group of countries – first movers to make national level commitments to alignment of all government support (including through public finance institutions – DFIs and export credit agencies), set to a credible schedule.
Develop or engage with a leadership group of initiatives and actors an 'alliance' (non-governmental and private sector) focused on ambition around Article 2.1c (either in the public domain or behind closed doors) – e.g. private banks/investors making 'Paris alignment' commitments.
Engage private-sector data aggregators and rating agencies to raise their awareness of Article 2.1c and how they might use their tools to support assessment of investments in companies and projects in the context of Paris alignment goals.

assessing the effectiveness of existing activities and commitments in terms of the impact they have (or could have) on alignment of finance. For example, some initiatives, such as green bonds or divestment, may lead to re-categorisation of or reduction in an individual investor's holding of high-carbon assets, rather than an overall shift in total finance towards climate compatible activities. Data to support such assessment will be essential, including that which tracks shifts in finance, and not only commitments to do so (see also Mirabile and Jachnik (forthcoming)).

One near-term opportunity will be through the UN Secretary-General's 2019 Climate Summit and its linked Climate Finance Leadership Initiative (CFLI) (UNSG, 2018). One of the CFLI's goals is to draw members from top international financial firms and corporations to 'catalyse scaled up investments in clean energy and climate resilience projects around the world, in both developed and emerging markets' (Bloomberg Philanthropies, 2018). Engagement with this initiative could include a focus on the different government tools outlined in this report (regulations, fiscal levers, public finance and information) and how they can be used to shift finance towards supporting the Paris goals and away from high carbon and maladaptive activities.

Other relevant bodies that work on international financial regulation or standard-setting include the IMF and the BIS, which hosts international organisations engaged in standard setting through the Basel process (BIS, 2018). The IMF has been involved thus far in helping countries with fiscal and macroeconomic responses to climate change (IMF, 2018). Pension funds, sovereign wealth funds, the insurance sector and export credit agencies are important actors in the global financial landscape. Trade measures, relevant to the World Trade Organization, range from harmonising sustainability standards to the liberalisation of green goods and services (Cosbey, 2016). Further research could be done to identify other relevant bodies that are not mentioned in this paper, including those bodies that are already engaged in some respect or could become more involved in making finance consistent with the Paris climate goals.

Table 6 highlights some of the suggested next steps beyond the UNFCCC processes to better support and ensure deliver on Article 2.1c.

6.3 Conclusion

Article 2.1c is one of the most important parts of the Paris Agreement: aligning finance to support climate action is the means to meeting both the temperature and adaptation goals. Yet there is limited awareness of, few opportunities for discussion on, and insufficient action to meet the goal. To address these gaps, this paper has suggested a framework that highlights the different entry points for governments and other stakeholders to operationalise Article 2.1c.

Governments, the private sector and civil society all have critical roles to play in driving action, tracking progress and raising ambition. The workload is substantial, and it will be important to further map, coordinate and build on existing initiatives as well as develop new ones to fill the gaps identified.

Parties to the Paris Agreement must deploy all the tools they have on hand to realign finance with climate goals, and there is a need to act urgently: the recent IPCC report found that to keep warming to 1.5°C the world needs to reach net-zero GHG emissions within 25 years. More starkly, emissions are currently on track to exceed the 'carbon budget' for 1.5°C by 2030 (Coninck et al., 2018). There is no time to delay.

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Appendix 1 Consultation and engagement meetings undertaken in 2018

This paper was developed through desk research, and a series of consultations through organised workshops, participation in discussions at other conferences and workshops, and bilateral meetings. This Appendix summarises the meetings convened (including participants lists) and the meetings attended.

Project kick-off meeting, 23 July 2018

Name	Country/institution
Padraig Oliver	Climate Policy Initiative (CPI)
Kelly Clark	Finance Dialogue (European Climate Foundation)
Tom Lorber	Children's Investment Fund Foundation (CIFF)
Laura Stone	Children's Investment Fund Foundation (CIFF)
Claudia Keller	Germany
Rob Moore	United Kingdom

Dinner roundtable discussions, UNFCCC intercessional meetings Bangkok, 7 September 2018

Name	Country/Institution
Lorena Gonzalez	AILAC advisor
Bianka Kretschmer	AOSIS advisor
Jose Delgado	Austria
Mahlet Melkie	Ethiopia
Ismo Ulvila	EU
Delphine Eyraud	France
Claudia Keller	Germany
Ralph Bodle	Germany
Michael Koemm	Germany
Tomoyo Onishi	Japan
Evans Njewa	Malawi
Jerome Ilagan	Philippines
Ronny Jumeau	Seychelles
Kristina Åkesson	Sweden
Gabriela Blatter	Switzerland
Dominic Molloy	United Kingdom
Rob Moore	United Kingdom
Randy Caruso	United States

Bilateral meetings (September – November 2018)

Name	Country/institution
Diann Black-Layne	Antigua and Barbuda
Eddy Perez	CAN/Réseau Action Climat Canada and CAN Finance Group coordinator
Chris Fox	Ceres
Jan-Willem van de Ven	European Bank for Reconstruction and Development
Carel Cronenberg	European Bank for Reconstruction and Development
Sung-Ah Kyun	European Bank for Reconstruction and Development
Kate Wilson Butler	New Zealand
Georg Borstig	Norway
Raphael Jachnik	OECD
Christopher Zink	Sweden
Stephen Hammer	World Bank Group
Mark Lutz	World Wildlife Fund
Chris Weber	World Wildlife Fund

Key events attended (September – November 2018)

Global Climate Action Summit (San Francisco, 13–14 September)
UN General Assembly / NYC Climate Week / One Planet Summit (New York, 24–28 September)
International Monetary Fund and World Bank Annual Meetings (Bali, 8–14 October)
FT Climate Finance Summit (London, 9 October)
OECD CCXG and Research Collaborative on Private Climate Finance (Paris, 8–9 October)
GCF Board Meeting (Bahrain, 17–20 October)
OECD Green Finance Forum (Paris, 26–28 November)

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