

## Briefing: Adaptation funding and finance – background and challenges

### Purpose

This document provides background information and is intended to brief participants and inform discussion at the Adaptation Scotland Climate Finance Round Table taking place on 24 March 2020. It provides definitions of climate finance and gives an overview of the global and Scottish context for action. It also provides an overview of current sources of climate finance and sets out an initial discussion on challenges with funding and financing adaptation action.

### Global context: defining climate finance and the case for action

Climate change is causing severe, pervasive and potentially irreversible impacts for people, ecosystems and economies globally. In order to respond to and prepare for climate change impacts, there is a significant need for financial investment in both mitigation and adaptation interventions, referred to as climate finance. Climate finance is a broad concept with no single definition. The UNFCCC Standing Committee on Finance (2014) states ‘Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts.’<sup>1</sup> The UNFCCC also proposes that **climate finance ‘refers to local, national or transnational financing – drawn from public, private and alternative sources of financing – that seeks to support mitigation and adaptations that will address climate change’**<sup>2</sup>. This holistic framing incorporates a wide range of financing modalities for activities across both mitigation and adaptation globally.

Whilst the reduction of greenhouse gas emissions (mitigation) is essential to reduce global climate change, there remains a pivotal role at the national to local scale for reducing the impacts of climate change (adaptation)<sup>3</sup>. However, there is a very large gap between adaptation funding needs and available finance. The Adaptation Gap report (UNEP 2018<sup>4</sup>) reported that by 2030, the estimated costs of adaptation could be \$150 billion to \$200 billion per year, rising to \$280 billion to \$500 billion per year by 2050. In contrast, global public finance flows for adaptation were reported at US\$30 billion/year in 2017/8 (Global Landscape on Climate Finance, CPI, 2019<sup>5</sup>).

Adaptation financing needs increase with higher warming scenarios, i.e. if mitigation is lower. The 2015 Paris Agreement agreed the goal of limiting temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit to 1.5°C. However, the Emission Gap Report (UNEP, 2019<sup>6</sup>) indicates a trajectory of three degrees based on current international pledges under the Paris Agreement.

The Climate Policy Initiative (2019) have stated, *“There is a need for a tectonic shift beyond ‘climate finance as usual’. Annual investment must increase many times over, and rapidly, to achieve globally*

<sup>1</sup> UNFCCC. Standing Committee on Finance – 2014 Biennial Assessment and Overview of Climate Finance Flows Report. (2014) [https://unfccc.int/files/cooperation\\_and\\_support/financial\\_mechanism/standing\\_committee/application/pdf/2014\\_biennial\\_assessment\\_and\\_overview\\_of\\_climate\\_finance\\_flows\\_report\\_web.pdf](https://unfccc.int/files/cooperation_and_support/financial_mechanism/standing_committee/application/pdf/2014_biennial_assessment_and_overview_of_climate_finance_flows_report_web.pdf)

<sup>2</sup> UNFCCC. Introduction to Climate Finance. (2020) <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>

<sup>3</sup> Goldman Sachs. 2019. Taking the Heat: Making Cities Resilient to Climate Change. <https://www.goldmansachs.com/insights/pages/gs-research/taking-the-heat/report.pdf>

<sup>4</sup> UNEP (2018). Adaptation Gap Report. Published by United Nations Environment Programme, Nairobi <https://www.unenvironment.org/resources/adaptation-gap-report>

<sup>5</sup> Climate Policy Initiative, 2019. Global Landscape of Climate Finance 2019 [Barbara Buchner, Alex Clark, Angela Falconer, Rob Macquarie, Chavi Meattle, Rowena Tolentino, Cooper Wetherbee]. Climate Policy Initiative, London. Available at: <https://climatepolicyinitiative.org/publication/global-climate-finance-2019/>

<sup>6</sup> UNEP (2019) Emissions Gap Report. Published by United Nations Environment Programme, Nairobi <https://www.unenvironment.org/resources/emissions-gap-report-2019>

*agreed climate goals and initiate a truly systemic transition across global, regional and national economies. In this context, scarce public and other concessional financial resources must be used in a more transformative way.” This **scale and shift of financing will necessitate collaborative working** between national, regional and local governments, banks and private investors to ensure financing is in line with the Paris Agreement.*

There is a **need to identify appropriate business models for climate adaptation finance that are suitable to local context and needs**. This is beginning to happen with major corporations and financiers starting to shift mindsets. This includes BlackRock’s CEO Larry Fink warning other CEOs that **“climate risk will impact both our physical world and the global system that finances economic growth”**. He urges investors to utilise the evidence on climate risk to reassess risk and asset values as well as core assumptions about modern finance, indicating a significant reallocation of capital is forthcoming.

These recent advancements cement 2020 as a year of climate action. The Conference of the Parties (COP26) being held in Glasgow in November of this year provides an opportunity to further advance the understanding of, and access to, climate finance. In order to progress this, the Bank of England has launched a “COP26 Private Finance Agenda” to help private finance support the global economy transition to net zero and resilience with the aim that all financial decisions consider climate change risks and implications<sup>7</sup>.

The Adaptation Gap Report (2016) reports that in order to deal with the adaptation finance gap effectively, there is a requirement for both reducing level and the cost of adaptation, as well as increasing the level of finance. This indicates that as well as step -up in the mobilisation of resources, there is a need to increase the effectiveness and efficiency of interventions.

### Scottish context: Key drivers for increasing adaptation funding and finance

Drivers for funding and financing adaptation in Scotland are influenced by the global context set out in the previous section. There are additional drivers within Scotland that are adding further weight to the need for increasing the availability of access to adaptation funding and finance including:

#### 1. Growing evidence and increasing adaptive capacity

Scotland’s collective understanding of the risks stemming from climate change is increasing as a result of growing evidence and data from projects such as the National Flood Risk Assessment, the first, second and third UK Climate Change Risk Assessment, Dynamic Coast – Scotland’s National Coastal Change Assessment and the regional research such as the Climate Ready Clyde climate risk and opportunity assessment. This enhanced level of detail is increasingly focused on supporting the identification of adaptation options to manage risks.

The Adaptation Capability Framework launched in 2019 by Adaptation Scotland recognises the importance of better understanding and improved climate data whilst also acknowledging that successful adaptation requires effective leadership, appropriate governance arrangements, inclusive planning approaches and working beyond organisation and sectoral silos. The use of the Framework by Scotland’s public sector to develop and mature their adaptation capabilities is increasing demand for adaptation funding and action.

<sup>7</sup> UNFCCC. 2020. COP26 Private Finance Agenda Launched. <https://unfccc.int/news/cop26-private-finance-agenda-launched>

## 2. Management of the financial risks associated with climate change

There has been a recognition that climate change is a financial risk, from the physical risk of climate change itself and the transition risk from changes in policy, technology and markets, notably from climate policy, climate taxes, etc. This has been advanced by the Task Force on Climate-related Financial Disclosure<sup>8</sup>, established by the G20's Financial Stability Board, and through the Network for Greening the Financial System<sup>9</sup>.

The UK's Green Finance Strategy (2019), takes these principles of managing the financial risks of climate change and transposes them into the UK regulation of the financial services sector. The strategy states that, *"To achieve the goals of the Paris Agreement and our wider environmental ambitions, all finance will need to incorporate the financial risks and opportunities presented by climate change and other environmental challenges."* In addition, finance needs to consider climate risks and work to avoid aggravating ecosystems' climate vulnerability.

As well as raising awareness in public financial management institutions, these initiatives are encouraging voluntary, climate-related financial risk disclosures by banks, insurers and companies, which is driving private sector action in adaptation to manage these risks.

There are two types of adaptation investment, which may involve different financing elements. These are:

- **Adaptation investments or projects, which are focused on climate adaptation**, i.e. where addressing climate risks is the primary objective (e.g. coastal protection to manage rising sea levels).
- **Climate resilience investment or projects (e.g. climate proofing)**, i.e. where adaptation is a secondary objective, such as resilience in a planned road project. This is sometimes called climate proofing. This can also include the mainstreaming of climate change in existing policies or plans, e.g. in the health sector. These involve incremental finance on existing investment and financing.

## Overview of climate finance sources in Scotland

There is already a diverse set of sources of finance available in Scotland to support action on adaptation. These include<sup>10</sup>:

- **Public-sector Financing** - Governmental sources such as grants, loans or local municipality, regional, and national budgets. These may be funded by local tax revenues, municipal bonds or land-value capture strategies (where municipalities sell ownership or development rights to fund infrastructure projects). This also includes European Union (EU) funding – a summary of which includes:

<sup>8</sup> <https://www.fsb-tcfd.org>

<sup>9</sup> NGFS, 2019. Network for Greening the Financial System. A call for action Climate change as a source of financial risk April 2019. [https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs\\_first\\_comprehensive\\_report\\_-\\_17042019\\_0.pdf](https://www.banque-france.fr/sites/default/files/media/2019/04/17/ngfs_first_comprehensive_report_-_17042019_0.pdf)

<sup>10</sup> Adapted from: European Environment Agency. (2017). Financing urban adaptation to climate change. <https://doi.org/doi:10.2800/23556>

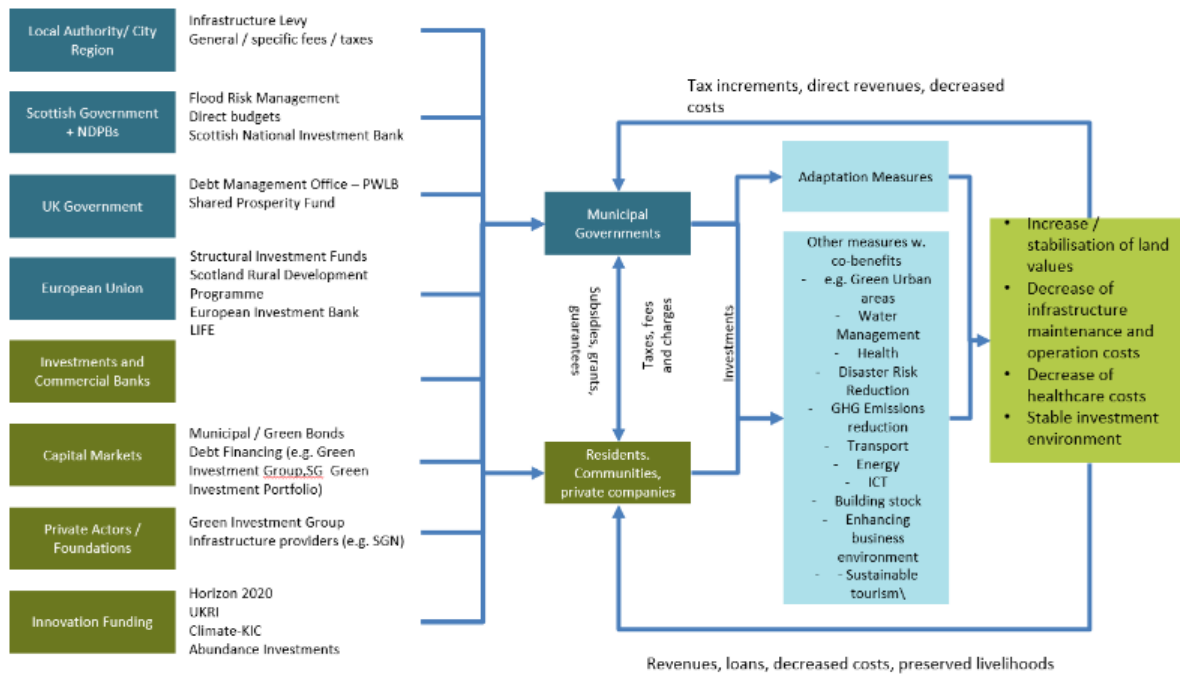
Funding Source	Purpose
LIFE	€3-5m size projects for Adaptation implementation
Urban Innovation Actions	€3-5m size projects for demonstration of adaptation innovation
European Regional Development Fund	Regional socio-economic development – with adaptation mainstreamed as a requirement
Horizon 2020 / Horizon Europe	Research and Innovation
EIT Climate-KIC	Innovation and market readiness of goods and services, and deep demonstrators of change in regions and cities
European Investment Bank	Large scale low cost or concessionary loans (€100m+) for infrastructure and regeneration

- **Private-sector Financing**, such as commercial banks through loans or guarantees as well as direct investments from institutional investors - foundations, real estate developers, businesses, crowdfunding or green bonds.
- **Public Private Partnerships (PPP) and Private Finance Initiatives (PFI)** - These combine public and private financing. Government guarantees minimum payments to private sector and designs concessions to reduce risk on repayment.
- **Insurance and reinsurance to reduce hazard.** Insurance (whether through the market, or government backing such as through Flood RE) may be able to support adaptation through pricing risk accurately and imposing stricter constraints on building and rebuilding in flood prone zones. Insurance may help the spread and transfer of climate-related extreme event risks and may also incentivise risk reducing or preventative behaviour, however, it cannot address changing climate trends.
- **De-risking instruments**, such as risk pooling insurance, nature-based insurance models, Guarantees, disaster insurance or alternative re-insurance models, to reduce underlying investment risks that may cause higher financing costs.
- **Contingency financing** that can be used for early response and early recovery including disaster contingent financing, disaster relief funds and restoration funds with preferential interest rates.
- **Debt instruments**, e.g. green bonds, catastrophe bonds (devised to raise funds for companies in insurance sector in event of disaster), resilience bonds (which fund projects to reduce vulnerability and enhance resilience before and following extreme events), sovereign blue bonds (issued to raise capital to finance marine and ocean-based projects that have positive environmental, economic and climate benefits) and green bonds (which funds projects that have environmental and/or climate benefits). Debt re-structuring, e.g. debt- equity swaps, may also be used.

Innovative approaches are also currently being developed including insurance-linked loan package (an infrastructure loan with a built-in insurance component), resilience impact bond (payments are dependent on physical, operational and financial resilience measures being implemented) and

resilience service company (product or business model whereby an agent pays up front for an insured asset with the expectation of a share of future insurance premium savings)<sup>11</sup>.

As part of preparing Glasgow City Region’s Adaptation Strategy and Action Plan, Sniffer, in its role as technical secretariat for Climate Ready Clyde has mapped the availability/applicability of funding sources in Scotland for adaptation and placed it in the broad business models for funding adaptation. This is shown below:



Climate Ready Clyde, Forthcoming, Adapted from EEA, 2017

In practice, multiple types of financing are often combined within projects or measures, known as blended finance. Different funds may be required at different stages of project development. ‘Seed funding’ to commence a project may often be garnered from a municipal government or funding body and then used to leverage further financing from public or private stakeholders. Complex projects may necessitate blended finance where multiple funding sources such as grants, and loans being accessed together. As Goldman Sachs (2019) state, “Given the scale of the task, urban adaptation will likely need to draw on innovative sources of financing.”

### Key challenges associated with funding and financing Adaptation

The authors have identified challenges set out in this section following initial background research and will be further developed during the Adaptation Scotland Climate Finance Round Table and subsequent Climate Finance Expert Working Group. A range of challenges associated with funding and financing adaptation have been identified. They include challenges associated with both in dedicated adaptation projects, and in mainstreaming adaptation into other activity.

There is a growing recognition that there are often barriers (also called constraints) that make it difficult for individuals, businesses and governments to plan and implement adaptation actions (PWA and Sniffer, forthcoming). These involve a variety of issues, but include economic, policy, governance and social, cultural, and institutional barriers. These barriers can make it difficult to make decisions or take action, even when it is clear that his is needed. While some of these issues are common to all

<sup>11</sup> Lloyds (2018) Innovative finance for resilient infrastructure. Innovation Report 2018: Understanding Risk

decisions, there are some factors that are unique to climate change adaptation. Addressing these barriers is therefore key for adaptation implementation.

In severe cases, these constraints can be so large as to create limits to adaptation. This then requires transformational adaptation, which involves a transition or shift to a new system, rather than an incremental change.

## Barriers

The UNEP/ GCA 2019 report ‘Driving Finance Today for the Climate Resilient Society of Tomorrow’, identified five barriers to scaling up climate adaptation finance:

- Inadequate support and/or incentives to act;
- Weak policies and conventions in the financial industry;
- Market barriers;
- Operational gaps at the institution level; and
- Low technical capacity for climate risk management.

Barrier Categories	Barriers
Inadequate Support for Action on Adaptation/ Resilient Investment	1 Insufficient public financial support
	2 Insufficient incentives for private finance to act
	3 Moral hazard surrounding physical climate risks
Policy and Practice in the Financial Industry	4 Weak legal/regulatory frameworks and guidance
	5 Lack of meaningful disclosure of climate risks
	6 Absence of harmonized and robust metrics and standards
Market Barriers	7 Perceived lack of profitable investments
	8 Perceived low commercial readiness of adaptation and resilient solutions
Nascent Application of Climate Risk Management Practices	9 Weak management of physical climate risks
	10 Insufficient availability and adoption of climate risks data and tools
Low Capacity for Climate Risk Management	11 Low capacity within Financial System Governance Bodies
	12 Low capacity within financial actors

They make six recommendations to promote financial investment in climate resilience, these include:

- Accelerate and promote climate-relevant financial policies;
- Develop, adopt, and employ climate risk management practices;
- Develop and adopt adaptation metrics and standards;
- Build capacity among all financial actors;
- Highlight and promote investment opportunities; and
- Use public institutions to accelerate adaptation investment

The adaptation finance gap is a challenge, however as UNEP/GCA (2019) highlight “it is also an opportunity for innovation around financial products, sharing and managing risks, and becoming more



*efficient in leveraging public balance sheets and capital to accelerate investments in all asset classes, sectors, and countries, regions and communities, particularly those that are highly vulnerable to impacts from climate change.”*

### **Economic versus Financial Appraisal**

The HM Treasury Green Book sets out the need to undertake economic appraisal when considering public investments, and it also highlights the need to consider climate impacts<sup>12</sup>. However, studies that undertaken such assessment often find that it is difficult to justify longer-term adaptation, due to the high uncertainty associated with climate change, and because discounting reduces future benefits (in present value terms, when compared to up-front costs) (OECD, 2015<sup>13</sup>).

These issues are compounded when looking at the financial case for adaptation. Economic analysis is undertaken from the perspective of society and includes all costs and benefits, including non-market aspects. Financial analysis is undertaken from the private project/investor perspective and the internal rates of return of adaptation are often very low.

These issues are important for both types of investments highlighted earlier – for dedicated adaptation investments or projects (where the main aim is adaptation) and for building climate resilience in planned investments or projects (or mainstreaming). To address this, there has been a focus on particular types of adaptation investments which tend to have good economic and financial returns. As set out in the UK CCRA<sup>14</sup>, these include

- Address the current adaptation gap by implementing ‘no-regret’ or ‘low-regret’ actions to reduce risks associated with current climate variability as well as building future climate resilience, or to enhance opportunities.
- Intervene to ensure that adaptation is considered in near-term decisions that have long lifetimes, such as major infrastructure developments, in order to avoid ‘lock-in’. This can include the use of decision making under uncertainty (DMUU) concepts (i.e. flexibility, robustness). These approaches are being adopted by the public banks as part of climate risk management (due diligence).
- Fast-track early adaptive management activities, especially for decisions that have long lead times or involve major future change, including planning, monitoring and research. This can enhance learning and allows the use of evidence in forthcoming future decisions, for either risks or opportunities.

Perhaps most importantly, there is a need to build the economic and financial case when developing adaptation propositions, including in the appraisal or business case.

<sup>12</sup> HM Government (2019) The Green Book: appraisal and evaluation in Central Government: <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

<sup>13</sup> OECD, 2015. Climate Change Risks and Adaptation: Linking Policy and Economics, OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264234611-en>

<sup>14</sup> Warren, R., Watkiss, P., Wilby, RL., Humphrey, K., Ranger, N., Betts, R., Lowe, J., and Watts, G. (2016) UK Climate Change Risk Assessment Evidence Report: Chapter 2, Approach and Context. Report prepared for the Adaptation Sub-Committee of the Committee on Climate Change, London.

## Challenges in developing bankable investment propositions

A significant increase is needed from both public and private sectors to address the adaptation finance gap. There are a multitude of challenges associated with developing adaptation projects which are attractive to investors, including:

- There is a **lack of knowledge and awareness of assessing climate risk** and constructing and implementing complex adaptation projects.
- The temporal element of a **timing mismatch**, e.g. where infrastructure assets have a long lifetime of decades but involve significant upfront immediate costs: in such cases it is often difficult to finance adaptation because of budget availability. Investment decisions often do not assess climate risk at the systemic level and when they do consider climate threats, they see them as temporally remote, limited, uncertain or unquantifiable (particularly at the individual project or asset level) and as a result discount them<sup>15</sup>. This **short termism** is a significant barrier to investors, developers and policymakers to fully consider and act upon climate risks. These aspects are compounded by **uncertainty**.
- Some projects may not be attractive to private sector financing due to the **high returns expected from the private sector**.
- Networks and coordination – there is limited awareness and engagement between financial institutions and public, private or third sector actors working on adaptation.
- More intensive analysis and resource requirements – analysis of climate change generally requires complex model outputs and detailed physical impact assessment which has data and time intensive requirements. Similarly, adaptation involves site and sector-specific impacts, meaning more intensive analysis is often required.

## Impact of Leaving the European Union

The UK formally left the EU on 31 January 2020. Whilst there is uncertainty regarding Britain and the EU's future relationship, it is anticipated that at least in the short term, this may restrict access to funding such as capacity building funds such as the EU Urban Agenda, innovation funds, loans, technical assistance (e.g. EIB) and structural funds. This may have negative consequences on access to climate finance.

The UK government has stated that it will retain its commitment to domestic and international climate efforts, even after leaving the EU <sup>16</sup>. The UK has asserted that it will remain committed to the Paris Agreement which includes provisions relating to climate adaptation.

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<sup>15</sup> Swann, S., & Miller, A. (2019). Driving finance today for the climate resilient society of tomorrow. 77. Retrieved from <https://www.unepfi.org/wordpress/wp-content/uploads/2019/07/GCA-Adaptation-Finance.pdf>

<sup>16</sup> House of Commons Library. Brexit: energy and climate change. <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8394>



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