

A Guide to Adaptation Climate Finance

Adaptation
Scotland
supporting climate change resilience

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**Adaptation
Scotland**
supporting climate change resilience

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Introduction

This guide introduces adaptation finance, identifies current barriers, and aims to support development of the knowledge and skills needed to successfully finance adaptation projects in Scotland. It is relevant for a wide range of sustainability, finance and project development professionals and is for anyone looking to assess financing options for climate adaptation related projects. Three use cases are explored, including public, blended and place-based adaptation finance.

Why is it needed?

There is a significant shortfall between the finance available for adaptation and the amount that is required, referred to as 'the adaptation finance gap'. Through developing knowledge and capability on adaptation finance, we can contribute to improving access to finance and increase adaptation action.

How is it structured?

The guide presents the concept of financing for adaptation action (Section 1), identifies barriers limiting access to finance (Section 2), and introduces the use cases that underpin this guide (Section 3). Guidance on suggested activities to help identify and secure finance is offered across the three use cases for financing public (Section 4), blended (Section 5) and place-based (Section 6).

How was the guide created?

The guide was created with the Adaptation Scotland Climate Finance Working Group who provided valuable feedback and, enabled us to learn from the experiences of Scottish practitioners. It is also informed by a literature review of grey and academic articles.

Send us your feedback

Adaptation finance is a rapidly developing area. This guide lays out many of the challenges and opportunities and provides practical suggestions for making progress. We welcome your feedback and suggestions for improving this resource and developing adaptation finance support for Scotland.

Contact Adaptation Scotland

- ▶ adaptationscotland@sniffer.org.uk
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Adaptation projects and adaptation finance – an introduction

Climate change is a global challenge that affects the planet’s ecosystems, economies, institutions, societies, and citizens. While a growing number of countries – including Scotland – have committed to reduce greenhouse gas emissions to net-zero, further warming is already locked in over the coming decades. This will lead to additional impacts that can only be reduced by adaptation.

Adaptation is defined as: “In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.” (IPCC 2022)

Adapting to climate change includes: adapting to present climate and weather, and making changes based on future projected changes in the climate. Our response to the challenge of adapting to climate change also intersects with wider social, environmental, and economic priorities as well as our transition to Net Zero.

At the project level, there are different types of adaptation projects or investments¹, including:

¹ These different types of adaptation projects broadly align with the OECD DAC Rio Markers finance tracking mechanisms.

Adaptation focused (primary adaptation) where the action or investment is directly in response to an identified climate risk or opportunity. Adaptation is the primary objective. Adaptation finance is needed for the whole investment (Khosla, 2020).

- ▶ For example the Tweed Forum’s [natural flood management to reduce flood risk](#) in the Scottish Borders or Historic Environment Scotland’s [soft capping work](#) at multiple sites to preserve masonry of traditional buildings in response to our changing climate.

Mainstreaming adaptation (secondary adaptation) where adaptation is integrated or mainstreamed into existing policies, programmes and plans (Khosla, 2020). When applied to investments or projects, this approach is often called climate proofing. Adaptation in this case is a secondary objective. In terms of finance, adaptation finance would only be required for the additional activities associated with the adaptation element of the project and not the underlying investment.

- ▶ Examples of ongoing projects which are addressing multiple outcomes (including climate adaptation) include the [University of Strathclyde’s Heart of the Campus regeneration](#) in Glasgow and the [Granton Waterfront Regeneration](#) in Edinburgh.

Finance for climate adaptation related projects (both when adaptation is a primary and secondary objective) is required. This finance will need to consider climate risks and impacts, as well as adaptation benefits and costs, and must be aligned to the relevant legislation and regulations.

The recent third UK Climate Change Risk Assessment (CCRA3, and the Climate Change Committee Advice report (2021), have highlighted the high economic costs of climate change, but also the high economic (societal) benefits of adaptation, reporting that investing in such action is extremely effective and efficient. Figure 1 illustrates indicative benefit-cost ratios.

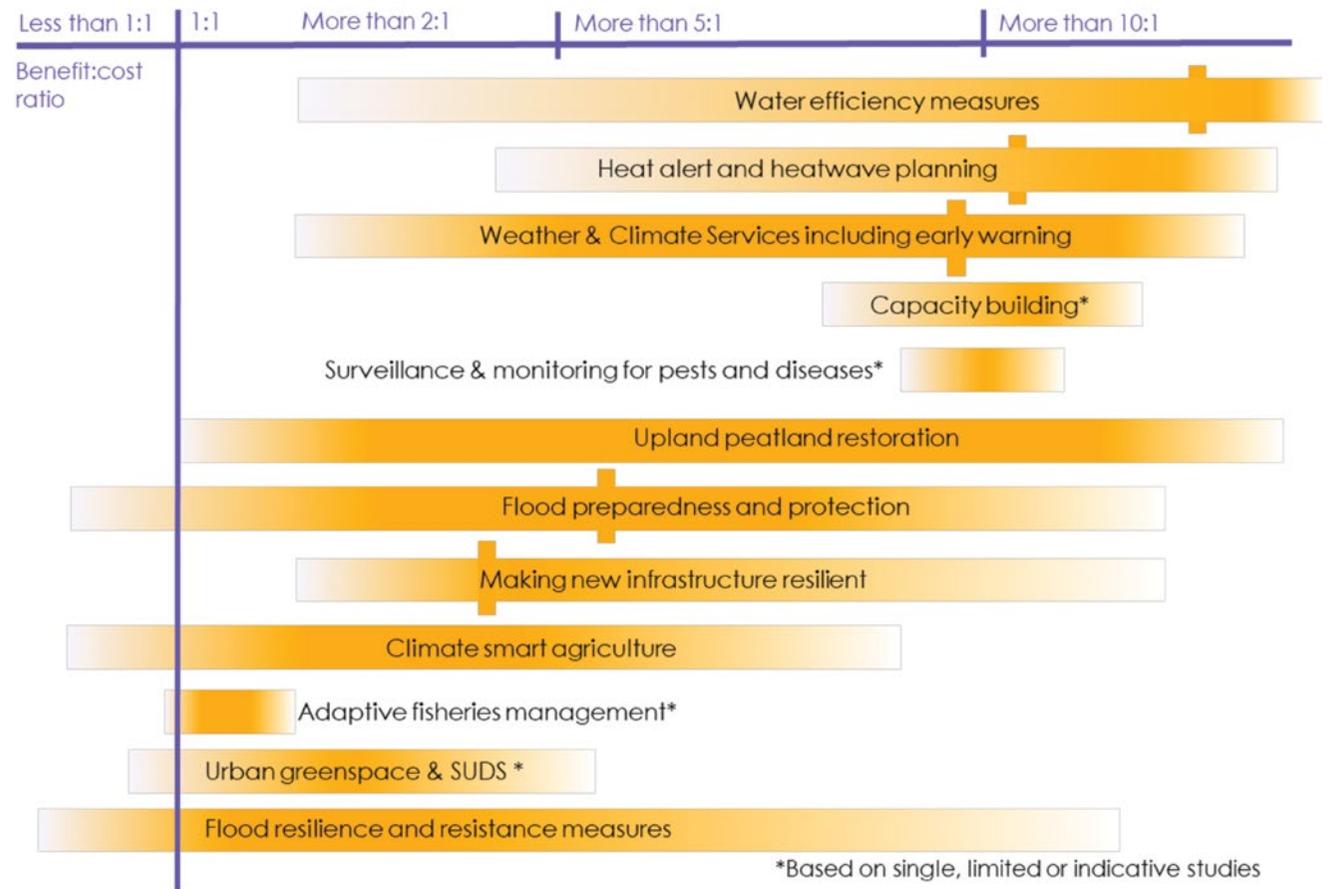
Globally, there is considered to be a large **adaptation finance gap**, which is defined as the difference between the amount of finance flowing into adaptation, versus the total estimated needs. At the global level, adaptation finance comprised approximately 7% of total global climate finance flows for 2020/21 (Climate Policy Initiative, 2021). The available evidence suggests that estimated adaptation costs, and likely adaptation financing needs, are five to ten times greater than current international public adaptation finance flows (UNEP, 2021).

This leads to a question of whether there is enough adaptation finance available to address the impacts identified in CCRA3. In Scotland, most major public funding schemes on climate change focus on mitigation, and the level of available adaptation finance flows are likely to be far below what is needed. This gap poses a major threat to the Scottish economy as well as the health and wellbeing of people and ecosystems. Whilst the case for increased adaptation investment is clear there are significant barriers that impede the flow of finance. These are explored further in the next section.

Find out more:

- ▶ UNEP Adaptation Gap Report 2021
- ▶ State and Trends in Adaptation Report 2020
- ▶ Monetary valuation of risks and opportunities in CCRA3
- ▶ Global Landscape of Climate Finance 2021 by Climate Policy Initiative

Figure 1 Benefit-cost ratios of adaptation measures. Source: Watkiss, P. and Brown, K.A (2021). Figure shows the indicative benefit-to-cost ratios and ranges for a number of adaptation measures. It is based on the evidence review undertaken in the CCRA3 Valuation



Barriers

Several barriers exist which restrict or constrain climate adaptation action in general, and adaptation finance in particular. Whilst adaptation action may be supported by robust Scottish policy enabling frameworks, there remains a systematic barrier relating to the volume of public sector funds.

For example, Scotland's Flood Risk Management (FRM) programme represents the most significant aspect of adaptation funding in Scotland, but cannot meet the demands of all projects. Similarly, Climate Ready Clyde estimates the current adaptation finance gap for the Glasgow City Region to be £184 million a year.

To date, there has been little strategic use of public sector funds to enable, incentivise and attract private sector investment at scale for adaptation. The strategic use of public funds could address a range of market failures that constrain investment in adaptation, including information gaps, positive externalities (when a benefit spills over to a third party, as the societal benefits of adaptation are often greater than the private financial benefits) and underdeveloped markets for adaptation. These barriers make it more difficult to generate revenues and returns for adaptation, and so to leverage private sector investment.

A survey of Climate Finance Working Group members revealed that the greatest barriers experienced to date for adaptation finance were (i) uncertainty or lack of awareness about future benefits of adaptation, (ii) low commercial attractiveness of adaptation due to the (in)ability to quantify revenue streams from adaptation for value capture, and (iii) no standard set of adaptation business models.

Table 1 provides a summary of the main barriers for adaptation interventions in Scotland that have been identified, grouped around the following areas: economic, financial, technical, information and political. These challenges were identified via engagement with Adaptation Scotland's Climate Finance Working Group in May 2021 as well as a literature review. Findings are based on the contributions of UNEP (2016), Pauw et al. (2016) Khosla and Watkiss (2020), Climate KIC Australia (2020) and CCFLA (2018).

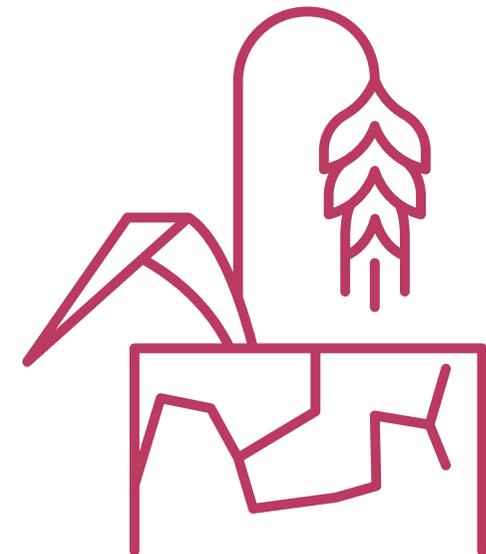


Table 1 Summary of common barriers to adaptation finance and relevance to the Scottish context

Description	Examples
Economic	
<p>Adaptation actions often have the character of public goods – i.e., they provide benefits to broader society, are non-rivalrous (individuals cannot be excluded from use) and non-excludable (use by one does not reduce availability of the good to others). In contrast, private goods must be purchased, and their goal is profit making (Persson, 2011). Therefore, in the absence of intervention or incentives, private actors are only motivated to invest in adaptation to reduce risks to business activities or see increased returns. Adaptation interventions may also lead to non-market benefits (e.g., improved health, environment, well-being) that are relevant for public sector projects, which take into account these wider economic (societal) benefits, but are not relevant for a private sector investor, who is more concerned with the rate of return.</p>	<p>These barriers can be addressed by public sector actors de-risking investment to incentive private sector involvement. This could involve public or philanthropic investors providing funds on below market terms to lower the overall cost of capital, or grant-funded technical assistance to develop or the strengthen commercial viability of the project. Examples in the UK include the Defra Natural Environment Investment Readiness Fund in England, which is providing funding to develop initiatives until they can provide a return on investment, or in Scotland the creation of the Glasgow Property Flood Retrofit programme where the public sector is planning to take a coordinating and grant-funding role which incentivises private sector and brings down individual costs</p>
Financial	
<p>Investors require projects to generate revenue or income streams, that can provide a return. Adaptation interventions do not always generate an obvious income stream for investors, as they often involve public goods (as discussed above) or are associated with reductions in climate risk that are hard to monetise. Adaptation can also involve up-front costs to deliver medium-term benefits, which involve lower returns and require patient capital. There is often a funding bias towards large discrete projects with low transactions costs and fewer actors, whereas adaptation often involves the opposite.</p>	<p>It is possible to develop complementary revenue streams from projects to address these barriers. For example, managed coastal realignment in Scotland does not have an obvious adaptation revenue stream. However, it is possible to design interventions that look at alternative benefit streams, for example ways of including blue carbon and carbon credits. NatureScot’s Scottish Marine Environmental Enhancement Fund (SMEEF) fund that supports some of the Blue Carbon Forum initiatives around blue carbon is an example of active engagement in this area.</p>

Description	Examples
Technical	
<p>The design of adaptation projects can be challenging, given site and context specificity. This is especially the case when moving from incremental to transformational approaches, the latter which aim to introduce system change. Lack of information and access to technologies and tools can restrict adaptation.</p>	<p>Climate Ready Clyde has developed technical knowledge and skills to enable adaptation in the Glasgow City Region. A set of short-term adaptation options were identified, which included some early low regret technical options. A literature review on what transformational adaptation looks like was produced, as well as an innovation portfolio within the Resource Mobilisation Plan and a Portfolio Blueprint.</p>
Political or regulatory	
<p>Policy constraints may arise when regulation or policy creates a barrier to effective adaptation. This may be due to a constraint at the national level (in terms of mandated authority), as well as at the local level. Policy barriers can also arise when there are conflicting or competing policy objectives – or a lack of clarity. Adaptation is usually undertaken to avoid damages, and decision-makers are rarely rewarded for avoiding problems (Bisaro & Hinkel, 2018). Weak legal or regulatory frameworks and guidance as well as an absence of harmonised and robust metrics and standards can restrict adaptation (GCA, 2020).</p>	<p>As adaptation is a fairly new theme in policy decision-making, the existing structure and/or the regulatory policy framework are often poorly aligned to adaptation objectives. The use of a shared vision on adaptation and the involvement of stakeholders can help reduce these barriers, for example, with the theory of change developed by Glasgow City Region for its adaptation plan.</p>
Information	
<p>Limited information to inform investment decisions is often a barrier to adaptation. There is a need for climate risk and vulnerability data at the appropriate level, noting this often involves high uncertainty. An absence of quantitative data on adaptation benefits, and so financial and risk performance of adaptation projects, can make it harder to finance projects. There may be cases where actors have different levels of knowledge or access to information, which can lead to challenges. Similarly, different actors may be responsible or may benefit from different aspects of a project – and so may have different incentives.</p>	<p>Public grants can be used for technical assistance to build the capacity of finance actors, for example by investing in market information, climate assessments, and by providing training and piloting of new financial products. A strong enabling environment helps reduce information barriers – where there is transparency, public private partnerships can work together, aligning projects to regulatory frameworks etc. The Trees as Infrastructure pilot in Glasgow is an example of a project working to address information gaps.</p>

Introducing the Use Cases

The use cases included in this guide have been created to inform the development of investment ready adaptation projects in Scotland, and to increase opportunities for financing from the private sector. Public, blended and place-based use cases are described in Table 2 and featured in Sections 4-6 along with accompanying case studies.

- ▶ a **use-case** is a generalised application of adaptation finance in a particular decision-making context
- ▶ **case studies** are specific examples of the use of adaptation finance. The case studies can serve as partial or full illustrations of the use-cases.

The use cases focus on project-level, adaptation focused initiatives. Every adaptation project is unique, the use cases provide points to consider and helpful examples and should not be used prescriptively.

The use cases focus on financing activities. They do not describe how to (i) evidence the need for an adaptation project through completing a risk assessment or (ii) how to identify potential adaptation options to address risks. These steps are required before financing options are explored in detail. For advice on risk assessment and adaptation options visit the Adaptation Scotland website or contact the enquiries service adaptationscotland@sniffer.org.uk

Table 2 Summary of use cases presented in guidebook

Use Case	Description
Public use case	Governments are often responsible for adaptation planning and public actors therefore play a role in enabling adaptation through policy actions and providing public finance or funding. This use case presents key activities for public sector organisations seeking finance.
Blended use case	Blended finance can take a variety of models but typically involves the public sector using funds to enable or de-risk private sector action. Private actors may implement adaptation-related projects for their own self-interest, but they can also be incentivised to develop new goods and services associated with wider adaptation. Public finance can help support the early development of such goods and services, and/or it can be used to support adaptation, for example, when it may deliver broader societal benefits. This use case supports projects considering the use of blended finance.
Place based use case	This use case explores financing activities relating to specific geographic place and/or broader place-making projects. It includes public and blended finance relevant across a range of scales.

Public Use Case

The public use case relates to finance provided by the public sector. Governments are often responsible for adaptation planning, and public actors play a key role in facilitating and harmonising policy actions and public finance for adaptation.

There are some adaptation activities and investments that require (and justify) public intervention, usually because they involve investments or changes that involve public goods or societal benefits, and there is limited private sector interest. In these cases, public investment can support core adaptation. Public funds can also be used to create the enabling environment for actions by the private sector and others (CRC, 2021).

Public finance may be used for:

- ▶ Primary adaptation projects that align with typical public investment, such as flood risk management, urban tree planting, peatland restoration or installation of blue and/or green infrastructure.
- ▶ Public projects where adaptation is a secondary element i.e., including resilience in public projects involving mitigation, infrastructure, education, development, or regeneration projects.
- ▶ Public projects that have multiple objectives, one of which may be adaptation, e.g. nature-based solutions or economic regeneration.

This section suggests activities that are relevant for public sector organisations looking to secure public adaptation finance.

Consider the policy landscape to identify policy levers for adaptation

At the project conceptualisation stage, it is useful to define the project in terms of the problem (or opportunity) it is addressing and to align it to the relevant institutional framework.

It is helpful to review existing legislation and policy that mandates or supports climate adaptation. This can help to build the case for adaptation action, ensure alignment with strategic context and help identify potential funding sources. Projects that address multiple statutory duties and deliver multiple benefits may be able to access a wider range of funding sources. A summary of relevant policy in Scotland is available [here](#). Examples of market and strategic drivers are highlighted in Table 3.

Table 3 Summary of drivers of adaptation investment. Adapted from Climate KIC Australia (2020)

Market Drivers

- ▶ Insurance premiums (reducing or increasing due to changing climate risk exposure)
- ▶ Assets becoming insurable / uninsurable due to changing climate risk exposure
- ▶ Risk to underlying mortgage-value of assets
- ▶ Exposure to climate risk may alter credit ratings
- ▶ Climate impacts may undermine the ability of local government to repay loans (shifting tax base)
- ▶ Pension funds increasingly looking for investments with long term horizons similar to adaptation projects

Strategic Drivers

- ▶ Knowledge of the importance of climate risk increasing across public sector
- ▶ Adaptation offers diversification of investor portfolios
- ▶ Climate impacts have financial impacts
- ▶ Litigation risks – government’s duty of care

Review available finance mechanisms and sources

A key part of the project conceptualisation stage is to review the finance landscape. A review of possible financing approach (public, private, blended) and instruments should be completed. Financial instruments are defined as “any contract that gives rise to a financial asset of one entity [the investor] and a financial liability of another entity [the investee]” (International Accounting Standards, 2016). At this stage, all possible sources of funds should be considered. Examples of finance mechanisms and sources commonly accessible to the public sector are summarised in Table 4.

Table 4 Summary of main types of Finance for Public Use Case

Main types of Finance for Public Use Case
<p>Grants / Public grants</p> <p>Grants are non-repayable funds that are disbursed to a recipient or organization by a government department, a foundation, or a corporation to fund a specific project. A grant does not need to be paid back and the provider is not given shares in the company or project. Grants are thus fully concessional. Grants may be able to fund part of or all of an adaptation project, reducing the cost and/or increasing the financial viability. Grants can also be provided early in project or business development support, e.g., for research and development, to address early-stage barriers. Results-based grants are a variation which links payment to certain milestones. Grants are particularly useful when projects have high societal benefits, but commercial potential is low, or to help support early stages to make a project investment ready.</p> <p>Public grants can come from a national or regional government or another publicly funded agency. For example, capital grants from the Scottish Government such as the Nature Restoration Fund, Biodiversity Challenge Fund and Scottish Enterprise Grants. A list is available in Appendix 1.</p>
<p>Bonds</p> <p>A bond is a type of debt instrument which can be used to raise funds. The value of the bond is paid by investors to the issuing entity in exchange for guaranteed repayments. This requires avoided costs or increased revenues from bond-financed activities. There are bonds that are potentially relevant for public sector organisations, which include:</p> <p>Green Bonds are loans for a fixed period for environmental projects – often associated with tax incentives. They offer longer maturity periods, third party credit enhancement and more flexible covenants than bank loans (ASAP, 2022). More detail on bonds is provided in Table 7.</p>

Main types of Finance for Public Use Case

Household or local business charge models

Household or local business charge models can be used to fund adaptation through relevant local charges (e.g., through household water charges to cover the costs of adaptation of public water supply). It is also possible to use local tax revenue, e.g., derived from council tax or business improvement districts, to potentially fund local projects.

Debt

Debt-based financial instruments include loans that are provided by one actor to another. This debt can be long or short term, and at concessionary or market rates. Debt instruments usually require a fixed payment, usually with interest. Debt does not transfer ownership of the project and debt providers do not have company voting rights (as equity providers have). Common characteristics of debt financing instruments include:

- ▶ Provision of capital for a limited amount of time (tenor and maturity date)
- ▶ Payment of periodic interest (fixed or variable) on outstanding capital
- ▶ Principal payments (repayment of capital) that are contractually fixed and not dependent on the borrower's success.
- ▶ Provision of capital is often secured by collateral.
- ▶ Debt re-structuring, e.g., debt- equity swaps, may also be used.

Debt instruments are common in our personal lives, such as mortgages on houses. Such loans can be challenging to obtain for adaptation projects unless they are bankable, i.e., technically and financially viable and with the potential to deliver a revenue stream to finance repayments and interest. This may be difficult as not all adaptation interventions have a direct financial return, especially in the short-term horizon (EEA, 2017).

Government based debt can include project loans from the Public Works Loans Board. The PWLB lending facility is operated by the UK Debt Management Office (DMO) on behalf of HM Treasury. The facility provides loans to local authorities, and other specified bodies, from the National Loans Fund, operating within a policy framework set by HM Treasury. This borrowing is mainly for capital projects. Scotland's local authorities can borrow money to carry out their functions from the Public Works Loans Board. By statutory provision, loans to local authorities are automatically secured on the revenues of the authority rather than by reference to specific revenues, assets or collateral. Other examples include low-cost or concessionary loans for infrastructure and regeneration provided by international finance institutions such as the European Bank for Reconstruction and Development (EBRD). Relevant actors include government agencies, state owned enterprises and financial institutions and national banks.



Case Studies

Loan Example – Athens Green Infrastructure for Urban Resilience

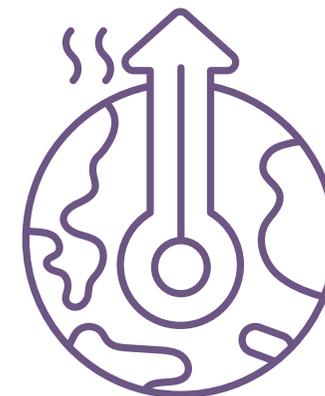
Loans for infrastructure, regeneration and resilience are available from public investment banks. For instance, a €5 Million Natural Capital Financing Facility (NCF) loan from the European Investment Bank (EIB) was provided to Athens to finance and support the integration of green components into the restoration of public squares and streets, create green corridors between different greened areas and contribute to the natural restoration of Lycabettus hill in Athens. This was part of the implementation of the Athens Resilience 2030 Strategy and will contribute to reducing urban heat island effects, increase natural water infiltration and improve overall attractiveness of the project areas. (Adapted from EIB, 2019. Further information [here](#).)

Water Charges – Copenhagen Cloudburst Scheme

One example of a city administration financing adaptation through a non-grant model is in Copenhagen where increased household water charges have been used to co-fund adaptation interventions for Copenhagen city. The funds are managed through the Copenhagen Cloudburst Scheme, which aims to fund 300 adaptation actions over 20 years. The main stormwater runoff infrastructure (underground storage, drainage system) is financed through the collected water charges by publicly owned water utility companies. The fees are controlled and regulated by the local government. The greening component linked to improvement of public space is paid for by the local government (primarily through collected taxes). While this demonstrates it is possible to use such measures to fund adaptation, it is important to recognise that it is primarily households who pay for the adaptation through water charges. (Case study adapted from CRC, 2021. Further information available [here](#).)

Develop the business case in accordance with public spending guidelines

Alongside agreeing a project concept and identifying potential funding sources, a business case can be developed, including an appraisal. Public spending proposals are typically required to develop a business case in line with HMT's [Five Case Model](#) which uses the methods for appraising the use of public resources in the [Green Book](#) (HMT, 2020). Given the complexity of climate change, Defra (2020) has developed supplementary Green Book guidance on [Accounting for the Effects of Climate Change](#). This section summarises potential activities and highlights additional supporting resources to aid development and analysis of the economic and financial cases. Within Scotland, the [Scottish Public Finance Manual \(SPFM\)](#) is issued by the Scottish Ministers to provide guidance on the proper handling and reporting of public funds.



The Economic Case of a public business case helps to identify the proposal (or option) that delivers best public value to society, including wider social and environmental effects. It estimates the social value of different options at both the UK and local level (either place based or for specific groups). The potential for unintended consequences, including maladaptation, can also be considered.

Demonstrating public value requires a wide range of realistic options are appraised (a long list), in terms of how well they meet the spending objectives and critical success factors for the scheme; and then a smaller number of possible options (a short-list) can be examined in further detail. The short-list should include a business as usual (BAU), a realistic and achievable 'do minimum' that meets essential requirements, the preferred way forward (if this is different) and other options.

When there is a clear difference in the social costs and benefits between alternative shortlisted options, Social Cost Benefit Analysis (CBA) can be used. Given the nature of climate change, however, the potential effects and uncertainty of climate change should be incorporated within the appraisal process (HMT, 2020B). This means costs and benefits cannot be assumed to be constant in the future. Costs and benefits of alternative options should be appraised against multiple climate scenarios to inform the baseline assumptions within the appraisal, which include thresholds or tipping points.

The uncertainty and complexity associated with climate change may make it difficult to use traditional decision techniques such as the use of cost-benefit analysis. Where it is possible to quantify and weigh the relative importance of flexibility, a Value for Money (VfM) approach may be used. Other appraisal methods which address uncertainty can be used, such as real options analysis, robust decision making, or portfolio analysis, but these are time and resource intensive and likely to be most relevant for very large investments. The most appropriate tool will depend on the policy, programme or project being appraised. Further information is available in the highlighted resources.

The Financial Case of the business case assesses the net cost to the public sector of the proposed option. The purpose is to demonstrate the affordability and funding of the preferred option. In contrast to the economic dimension which considers whether options provide the best social value, the financial dimension focuses on affordability (or the financial impact on public sector). This requires an understanding of the capital, revenue and whole life costs of the scheme and of how the option will impact upon the balance sheet, income and expenditure and pricing arrangements (if any) of the organisation.

To support the financial case, it is useful to list the benefits and possible revenues from a project, and for more detailed investments, to undertake a financial analysis to assess the financial internal rate of return.



Resources

- ▶ HMT (2020) The Green Book – Central Government Guidance on Appraisal and Evaluation
- ▶ HMT (2020) Accounting for the Effects of Climate Change Supplementary Green Book Guidance
- ▶ The Scottish Public Finance Manual (SPFM)
- ▶ Multicoloured handbook for flood and coastal erosion risk management
- ▶ Glasgow City Region Adaptation Strategy and Action Plan Annex 2: Selected Flagship Action Strategic Outline Cases provides examples of adaptation business cases
- ▶ IEMA Climate Change Adaptation Building the Business Case – Guidance for Environment and Sustainability Practitioners Further information is available via the [ECONADAPT Toolbox](#) which builds knowledge base on economics of adaptation and provides resources on appraisal methods
- ▶ Appendix 2 in this guide presents common methods to assess attractiveness of investments

Build capacity on resource mobilisation

The business case development process will prioritise project options and provide a preferred option. Feasibility assessments may then be required, and options may need to be re-designed based on detailed analysis. The outcome of the business case development process will also influence the commercial model and inform next steps for the finance flows in the project.



Case Study

BEST

BEST is a free tool that provides a structured approach to evaluating a wide range of benefits from blue-green infrastructure (particularly SuDS and natural flood management) based upon the overall performance of the chosen intervention. It follows a simple structure, commencing with screening and qualitative assessment to identify the benefits to evaluate further. Where feasible, it provides support to help quantify and monetise the potential benefits of blue-green infrastructure options. BEST has been used to support the **Glasgow City Centre Surface Water Management Plan (SWMP)**. Glasgow City Centre was the location for the SWMP that contains a mix of residential, educational, commercial and retail uses. The proposed option assessed using BEST was to 'implement SuDS with other surface water management measures'. It included several retrofit measures that could form part of the city's redevelopment plan, including green roofs, swales, permeable paving, a pond/wetland and exceedance management measures. The proposed option was compared to a baseline 'do nothing' case. The selected option provides a total present value (PV) benefit of £70.7mn (before confidence) and £63.1mn (post confidence). The benefit cost ratio (post confidence) is 2.4 (range of 0.2 to 3.7). Results of the assessment available [here](#).

If public sector financing is appropriate; then there will be a need to speak with relevant parties and potentially apply for available grants. Resources to support this include:

- ▶ Funding Opportunities Database – table available in Appendix 1
- ▶ Example of analysis of funding sources for Glasgow City Region, see [Climate Ready Clyde's Resource Mobilisation Plan](#)
- ▶ [CXC Research on International practice on assessing investment needs and securing investment to adapt](#) (February 2021)

There is also a need to ensure staff have the skills and capacity to develop funding applications. Co-developing projects can help build support and capacity to apply for and implement projects. In addition, staff may benefit from:

- ▶ City to city peer learning opportunities via [C40 cities](#), [ICLEI](#) and [Resilient Cities](#)
- ▶ Communities of Practice such as [Scottish Nature Finance Pioneers](#)



Case Study

Claypits Nature Reserve

Scottish Canals, with Glasgow City Council and Sustrans Scotland, have worked together to safeguard The Claypits' future by designating it as a Local Nature Reserve. They've also secured funding to support the sensitive development of the site in partnership with the local community. Funding came from a range of public and philanthropic sources including Sustrans, Glasgow City Council (VDLF), NatureScot (European Regional Development Fund), CSGN, Scottish Canals and Green Exercise Partnership (via Glasgow City HSCP). Further information [here](#).

Develop a pipeline of projects

Developing a pipeline of projects that are 'ready-to-go' can help take advantage of funding and financing opportunities that may arise. Support may only be available to projects with a completed design. Public bodies and local authorities may therefore benefit from designing some promising resilience projects and getting them ready for funding – drawing on existing plans, policies and

objectives. Work to develop a portfolio of resilience projects that align with organisational plans, community priorities and climate projections and are kept up to date with emerging data and evidence can also be useful (ASAP, 2022).

Design and implement monitoring and evaluation

Projects should include a monitoring and evaluation framework, with relevant indicators, as an integral part of project development and planning. This framework can then be used to track the performance of the project in terms of its outputs and outcomes. It is noted that the monitoring and evaluation framework may need to align with funder requirements.

The process of evaluation should be a continuous process at all stages of a project lifecycle, capturing outputs and outcomes, not just during implementation, and it can also be extended to include learning. To do this, it is important to reflect on what has worked and share these lessons (both pitfalls as well as best practice). It is highlighted that developing outcome-based indicators and evaluating adaptation measures can be complex due to the range of interconnected social, economic and environmental factors that need to be considered (HMT, 2020B).

These evaluations can also be used to report on value for money (VFM), which is used routinely in public policy analysis. This assesses the best use of public money but is not about achieving the lowest initial price. Several criteria (the 4 Es) are used to assess VFM. HMT (2020) suggest prompt questions to underpin monitoring and learning associated with climate adaptation, including:

- ▶ **Economy.** Has the measure reduced the cost of inputs or resources used? (spending less)
- ▶ **Effectiveness.** Has the measure achieved the desired outcome? Have there been unintended consequences, or maladaptation? Was there sufficient flexibility? (spending well)
- ▶ **Efficiency.** Did the benefits outweigh the costs? Would the decision have been different if today's information had been available when the decision was taken? (spending wisely)
- ▶ **Equity.** Did the measure impose significant disproportionate costs on individuals or groups?

Resources include:

- ▶ The [Magenta Book](#) provides guidance on evaluation
- ▶ HMT (2020) [Accounting for the Effects of Climate Change Supplementary Green Book Guidance](#)
- ▶ National Audit Office – [Assessing Value for Money](#)

Blended Finance Use Case

Public resources are likely to be insufficient to address the adaptation finance gap given that public actors often have constrained budgets for adaptation. Blended finance offers a way to use limited public funds to mobilise additional commercial finance, from private sources, to help achieve adaptation action.

Blended finance is defined by the UN Addis Ababa Action Agenda of the Third International Conference on Financing for Development as when projects “combine concessional public finance with non-concessional private finance and expertise from the public and private sector”.

Blended finance, however, is not just the presence of public or philanthropic and commercial capital in the same investment, but can also include the strategic use of risk-tolerant capital from public and philanthropic sources to de-risk and attract larger sums of capital available from private finance (Earth Security, 2021). Blended finance can help de-risk projects that may be too risky for more commercial capital to consider on their own (IDFC, 2019). Improved commercial viability of projects can be achieved by lowering financing costs or by providing risk mitigation instruments to increase attractiveness to investors (OECD, 2020). According to the IDFC (2019) the key characteristics of blended finance include:

- ▶ **Leverage:** The systematic and strategic use of public finance and philanthropic funds to

mobilise and engage private capital, ideally at scale.

- ▶ **Impact:** Investments that deliver measurable social, environmental, and economic impact.
- ▶ **Returns:** Market-based risk-adjusted returns for private investors that meets business goals and fiduciary duties. Returns for private investors in line with market expectations based on perceived risk.

Blended finance can increase capital leverage, but it can also enhance the skillsets, knowledge and resources of public and private investors. Ideally it can deliver risk adjusted returns in line with market expectations (OECD, 2020). As examples, blended finance may be used to:

- ▶ Support primary adaptation such as for new insurance products, community resilience interventions, surface water management, or household resilience measures.
- ▶ Seek to attract a variety of finance sources to match to different stages of a project life cycle, i.e., support resourcing of all stages of the project

ranging from grant writing, project planning and implementation.

- ▶ Speed up the financing process.

This section suggests activities that are relevant for organisations looking to develop blended finance for adaptation projects.

Engage with stakeholders

Early and proactive engagement with stakeholders is needed to develop a strong project concept. Engagement activities should enable stakeholders to identify and assess issues related to the adaptation solution, and associated risks of involvement. There are likely to be a wide range of stakeholders involved in developing a blended finance solution and significant time and resources are required to manage relationships, work through issues and co-develop solutions. Activities to help develop effective stakeholder engagement include:

- ▶ Identify key actors via stakeholder mapping or social network analysis.

- ▶ Engage possible investors through market engagement or marketplace events.
- ▶ If working with multiple stakeholders, consider co-design to develop the solutions in collaboration with financiers (public and private). Decide what to coalesce around and define project scope and objectives.
- ▶ Explore leveraging potential – discuss with key stakeholders to quantify potential contributions and expected returns. When identifying and approaching stakeholders consider risk appetite, financial risk tolerance, climate mandate, the ability to raise funds and flexibility to deploy funds (Saghir et al., 2021).
- ▶ Identify any barriers that may limit or disincentivise private investors and seek to address these.
- ▶ Establish appropriate governance and leadership structures to promote collaboration between actors.
- ▶ Identify policy and regulation drivers that actors may be motivated by and/or need to respond to.

Engaging stakeholders – policy and regulatory drivers

Financial Risks of climate change

The [Task Force on Climate Related Financial Disclosures \(TCFD\)](#) has created a framework to support public companies and organisations to disclose climate-related risks and opportunities through their existing reporting processes. Such disclosure may become increasingly required for investors and as such incentivises adaptation investment to minimise exposure to risk.

Sustainable Finance Taxonomy

The [EU Taxonomy for sustainable activities](#) is a robust, science-based transparency tool for companies and investors. It creates a common language that investors can use when investing in projects and economic activities that have a substantial positive impact on the climate and the environment. It will also introduce disclosure obligations on companies and financial market participants. Following Brexit, the UK established the [Green Technical Advisory Group \(GTAG\)](#) which will provide independent advice to Government on implementing a UK taxonomy – a common framework setting the bar for investments that can be defined as environmentally sustainable -which is currently in development.

Standards

Standards may encourage adaptation investment, including:

- ▶ [New ISO/TC 322 Sustainable Finance](#) – for the integration of sustainability considerations and environmental, social and governance (ESG) practices into institutional investment decision-making and wider finance management.
- ▶ [PAS 7340](#) Framework for embedding the principles of sustainable finance in financial services organizations. This sets out a framework and offers guidance on implementing principles and approaches to sustainable finance within organizations. It aims to provide a common terminology and set of principles for financial services organizations to help align their activities with the UN SDGs, and other sustainability initiatives. It is intended to be used by financial services organizations of any size and type and may be particularly useful to small and medium-sized organisations.
- ▶ [PAS 7341](#) Responsible and sustainable investment management. This PAS will be a set of requirements to establish, implement and manage the process of integrating ESG and sustainability considerations into investment management. It is intended to be used by anyone managing investments directly including investment management firms (e.g., fund/asset managers) and investment consultants and intermediaries in organisations of any size, as well as asset owners.



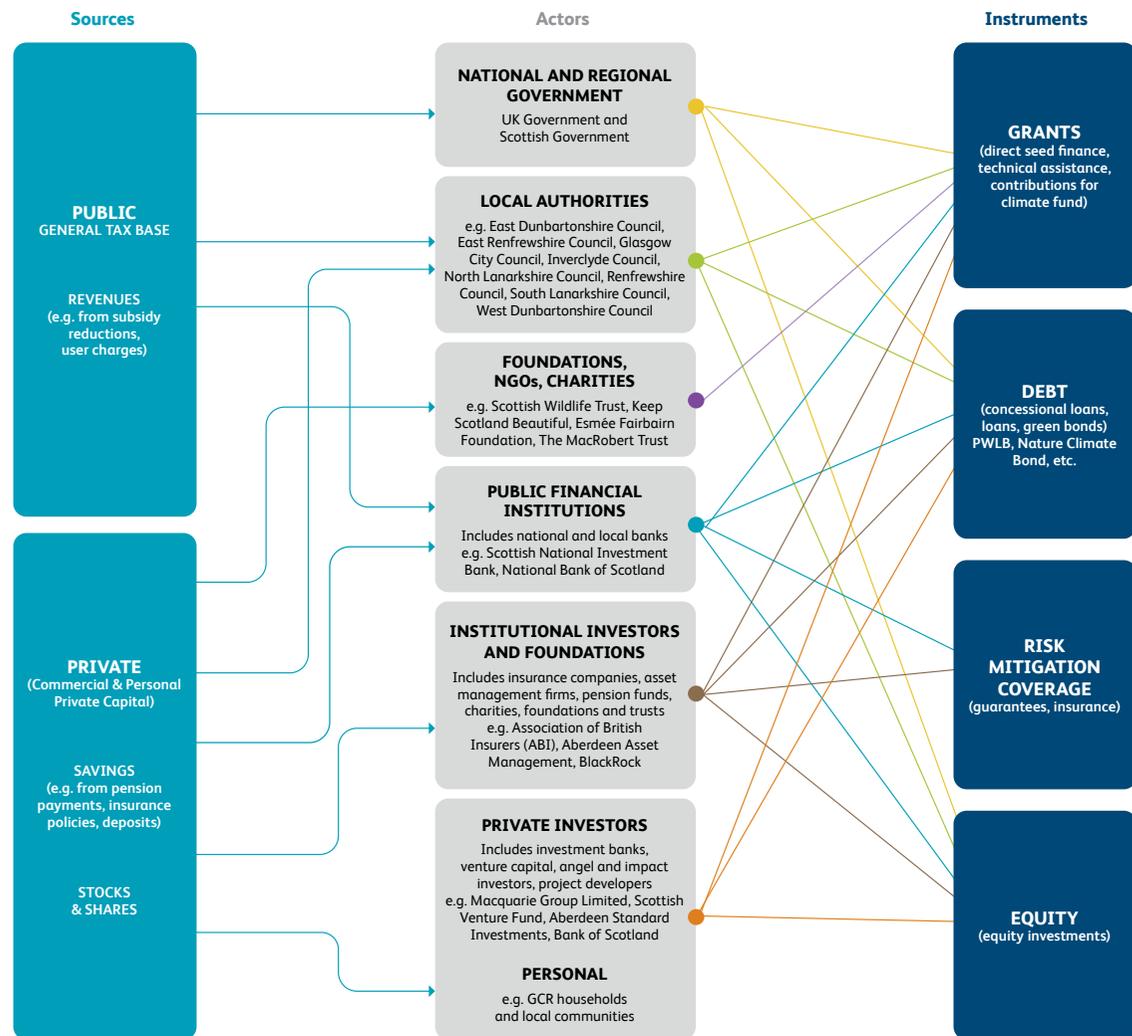
Case Study

Climate Ready Clyde

Climate Ready Clyde mapped existing public and private sources of finance for Glasgow City Region and identified relevant actors. Flows are currently dominated by the public sector and include funds from local authorities, other public bodies and agencies, as well as national government, UK government and/or the European Union. These potential sources of finance were mapped to different types of adaptation interventions, recognising certain forms of funding might be more suitable for certain interventions than others. This helped identify key actors to engage with. Further information available in the CRC **Annex 3 Resource Mobilisation Plan**.



Figure 2 Mapping of existing sources of adaptation funding and finance for Glasgow City Region. Source CRC Annex 3 Resource Mobilisation Plan



Share information and build capacity amongst stakeholders

For blended finance to be effective, there is a need to address incomplete information, and potential asymmetric information (when there is a difference in the information available to the parties involved that gives an advantage to one side). Sharing such information can help enable a joint understanding of the challenge and build trust. The way in which climate impact and adaptation response information is framed and presented to potential investors/financiers is important to ensure it addresses needs and where appropriate, relates the adaptation response to wider priorities and opportunities as well as mandatory reporting and disclosure requirements (as discussed in 5.1).

Public sector actors can raise awareness of climate risk, provide information and data on the benefits of investing in adaptation, as well as enhancing capacity to understand climate risk assessment and how climate impacts may affect company operations and supply chain networks amongst private sector actors (Adhikari & Chalkasra, 2021). Given this is a new area, training, including capacity building is often needed to develop bankable adaptation ideas to attract private investment.

The Global Commission on Adaptation (2020) suggests three steps are needed to scale up private investment:

- ▶ Increase understanding of the business case for investing in adaptation, with quantification of costs and benefits and identifying potential investment models.
- ▶ Promote access to and use of climate information and development of shared metrics for measuring outcomes to motivate private investment for adaptation impact.
- ▶ Strengthen enabling conditions for private investment through incentives and blended finance mechanisms which share risks among investors.



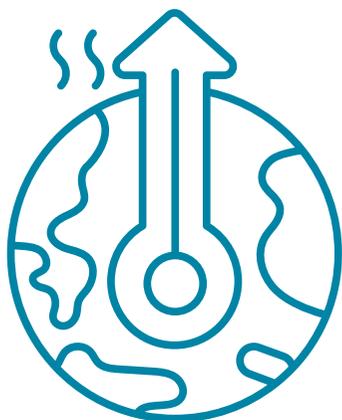
Identify potential revenue streams

Adaptation projects potentially enable diverse benefits to places and organisations. It is, however, often difficult to quantify adaptation benefits. This can make it difficult to attract investors and to access finance because:

- ▶ the actual returns from many adaptation activities may be too low compared to the investment costs, too far in the future or too uncertain for those projects to be bankable, and the activities may therefore be unable to obtain finance.
- ▶ the reduction in climate hazard (the adaptation) associated with a project may not generate income directly (adaptation services provided may not be priced and end-users are not currently charged), making repayment of finance difficult, and co-benefits may be needed to develop a viable business model.
- ▶ Scale issues can make financing more difficult, as individual projects are often not at the scale required to attract investors, and so need to be combined/packaged in a way that achieves sufficient scale.

There is a need to explicitly recognise the characteristics of goods and services provided by adaptation to help identify private incentives for investment and develop a broader set of financing options (Woodruff et al., 2020). This can be supported by:

- ▶ Investors fully understanding and recognising and pricing climate risks adequately
- ▶ Identifying “upside” adaptation such as new business opportunities or the creation of new markets. These may include new businesses or activities which complement existing operations and that take advantage of a changing climate, e.g., altering demand for goods and services (such as technology and climate information services).



Research sources of finance and financial instruments

Financing effective climate adaptation projects can require the use of different financial instruments depending on the specific need and investment risks. Blended finance is typically used to address barriers that hold back private sector investments in climate adaptation (World Economic Forum, 2022). It can also be an effective approach for better risk management.

Blended finance is a structuring approach, as opposed to an investment approach. Convergence, the global network for blended finance, identifies four common blended finance structures or archetypes, described [here](#). Table 5 summarises different blended finance examples and instruments. Factors that influence financial instrument suitability, according to Richmond et al. (2021) may include:

- ▶ speed of implementation required. Instruments that are simple with fewer actors may be swifter in project financing
- ▶ the maturity of the private investment environment for the sector
- ▶ monitoring and evaluation capacity which may be needed if financing involves outcome-based payments

Table 5 Summary of blended finance instruments adapted from IDFC (2019), Better Finance, Better World, Blended Finance Taskforce in partnership with the Business & Sustainable Development Commission (2018), Frankfurt School of Management Unit 8 (2020) and Gardiner (2015) Public-Private Partnerships for Climate Finance

Description Instrument	Type (examples)	Description Type	Risks / Barriers Addressed
Direct debt or equity			
<p>Direct financial investment into a transaction or blended finance vehicle – this includes public and private equity and debt finance (e.g. commercial & concessional loans, venture capital). Concessional capital, can improve the rate of return for investors</p>	<p>Junior / subordinated capital Concessional finance is provided by public entities on more favourable terms in order to mobilise commercial capital. Debt or equity at below-market rates helps to lower the overall cost of capital and mobilise finance from more risk-averse investors. This includes accepting subordinate or junior terms (first-loss or junior equity) compared to other co-investors. Compared to commercial loans, concessional loans are typically more attractive to the recipient because they have a subsidy component.</p>	<p>Subordinated debt or junior equity (including mezzanine). Losses on the value of the security are absorbed by the junior / subordinated tranche first</p>	<p>Multiple risks including off-taker risks, construction risks, credit risk etc.</p>
	<p>Catalytic capital Investment capital that is patient, risk-tolerant, concessionary, and flexible</p>	<p>Capital provided on commercial terms can be catalytic when used for demonstration effect</p>	<p>Access to capital, reputational risk</p>
	<p>Loan syndication Concessional loans can also effectively reduce the overall interest rate of financing if other lenders provide market-rate loans, thereby improving the affordability of finance to the investee</p>	<p>A loan facility offered by a group of lenders, who work together to provide funds for a single borrower (which may be a corporation, large project or sovereign government)</p>	<p>Transfer and convertibility risk, political risk, environmental and social risk Reduces transaction costs</p>

Description Instrument	Type (examples)	Description Type	Risks / Barriers Addressed
Guarantees			
<p>Generally, three party agreements where a third party provides an extra layer of protection for the beneficiary of a service (to protect against capital losses or provide credit enhancement)</p> <p>Guarantees represent an agreement by the guarantor to pay part of the costs incurred by an adaptation project in case of specified events. The guarantor offers the guarantee to the financier against the performance of the entity receiving the finance. This de-risks projects that are initially perceived to be too risky by private investors. The guarantor will agree to cover the loss (in full or in part) of a third-party financing transaction in the case of non-repayment or loss of value. Guarantees allow transactions to attract capital at more favourable rates.</p>	<p>Loan guarantees</p> <p>A loan guarantee is an obligation of the guarantor to assume the debt obligation of a borrower if that borrower defaults. Loan guarantees can cover the full amount of debt outstanding, or apply only for a defined portion, for example the book value of the asset. Loan guarantees are used in very specific cases when a private sector lender can provide the required capital but does not want to absorb the credit risk. Partial loan guarantees are sometimes attached to on-lending facilities. This means that the commercial lender receives capital for on-lending but does not become fully liable with its own balance sheet if the ultimate loan to the adaptation project fails. Guarantees to loans can facilitate the financing of adaptation project by offering protection against associated risks.</p> <p>Performance guarantees</p> <p>Concessional capital can also be provided conditional on a pre-agreed set of results ('impact-linked loans' or 'results-based financing'), which provide investors with the assurance that financing will be effectively tied to its intended ecological and social impact.</p>	<p>Complete or partial loan guarantees</p> <p>Issued by an insurance company or bank to a contractor to guarantee the full performance of the contract according to specific plans</p>	<p>Multiple risks including off-taker risks, construction risks, credit risks</p> <p>Completion risk, construction risk, technical risk</p>

Description Instrument	Type (examples)	Description Type	Risks / Barriers Addressed
Collaborative Revenue Bonds			
<p>Collaborative revenue bonds finance resilience measures using capital provided by private investors who are paid back by stakeholders who benefit from the projects.</p>	<p>Adaptation and resilience building projects often have benefits, but these may be spread over a number of entities. A bond allows the project to go ahead, if the total benefits outweigh the costs, even if the benefits to any one entity don't exceed the cost of the project. (America Adapts)</p> <p>Collaborative revenue bonds have three main activities:</p> <ol style="list-style-type: none"> 1 Measure benefits or co-benefits resulting from the project 2 Create a contract that converts realised benefits into payments from beneficiaries 3 Structure the beneficiary payments into cash flows for investors 	<p>Resilience benefits may be spread across insurance premium savings, credit rating improvements, cost savings, revenue from user fees</p>	<p>Addresses challenge of benefits being spread across multiple entities</p> <p>Such bonds do require collaboration between governments, financiers, legal experts etc who may have little or no prior experience of working together</p>
Insurance			
<p>Two party contracts between the insurer and the policy holder / project owner. The insurance provider promises to provide financial compensation in the instance of an event that results in financial loss</p>	<p>Commercial / business insurance can be used to de-risk adaptation interventions to attract private sector investment.</p> <p>Public funds may be used to target risks.</p>	<p>To support operations against unexpected events. Typically agreed threshold for compensation for a given policy</p>	<p>Construction risks / operation and output risks / upstream resource related risks</p>

Description Instrument	Type (examples)	Description Type	Risks / Barriers Addressed
Grants + Philanthropic funding			
<p>Financial contribution with no expected repayment – can improve project financial viability by offsetting high up-front transaction costs, reducing the uncertainty of a project becoming operational.</p> <p>Upfront grants can play an important role with regard to risk-sharing during the high-risk early stage of project development, or for Research and Development (R&D) in emerging and immature technologies. In contrast to upfront grants, results-based grants aim to strengthen the exposure of the project initiators and only provide payments if certain milestones have been reached.</p>	<p>Technical assistance facilities Technical assistance is provided offering technical or operational expertise. Therefore, costs and risks associated with exposure to new markets, technical uncertainty and the inability to build a pipeline can be reduced, lowering the high transaction costs for investors and operational risks</p> <hr/> <p>Project preparation assistance</p>	<p>Advisory, assistance or training to the investee business or other value chain and ecosystems actors</p> <hr/> <p>Grant or concessional funding provided specifically to deploy resources for early-stage project exploration</p>	<p>Access to capital, capacity development, reduce transaction costs</p> <hr/> <p>Lack of bankable pipeline, lack of local intermediaries</p>
Value Capture			
<p>Contractual and project finance arrangements to support the development of bankable projects – such as aligning mitigation and adaptation projects.</p> <p>e.g., Payment for ecosystem services to capture value from adaptation interventions.</p>	<p>Value capture focuses on instruments where public actors can recoup adaptation investments, e.g., in coastal flood risk beach nourishment investments. This may involve an agreement between producers and buyers of a resource to purchase or sell portions of future production used to secure financing (e.g., energy revenues). Funding may also be connected to carbon sequestration benefits, or subsidies such as feed in tariffs and tax credits.</p>	<p>Consider combining mitigation-based revenue streams with longer term adaptation outcomes.</p>	<p>Demand risk, financing risk – demonstrate bankable revenue stream</p>

Description Instrument	Type (examples)	Description Type	Risks / Barriers Addressed
Public Private Partnership			
<p>Private investment has the potential to supplement public investment to meet investment needs through a public private partnership. Establishing a clear, predictable and legitimate institutional framework supported by competent and well-resourced authorities is essential for the good governance of PPPs.</p>	<p>Public-Private Partnerships (PPPs) are long term agreements between the government and a private partner whereby the private partner delivers and funds public services using a capital asset, sharing the associated risks. A PPP is a formalised partnership defining the respective roles and responsibilities of public and private actors. There is a spectrum of possible contractual arrangements between these entities. These range from relatively short-term service contracts to long-term joint venture arrangements. Revenues can be generated through payments by the public actors, user fees or by a combination of both, however payment is contingent on performance.</p>	<p>PPPs “recognise the differing characteristics of public and private actors and seek to optimise the effectiveness of public service delivery by allocating risks to parties most suited to address them. However, climate risks are difficult to allocate and usually are not assigned to one party exclusively” (Gardiner, 2015).</p>	<p>Risk sharing</p> <p>Required enabling legislation and transparency</p>

Different types of investors will have different interests and risk appetites and therefore be inclined towards different financial arrangements and instruments. To support blended finance, Table 6 (adapted from Bisaro & Hinkel (2018)) identifies types of investors and types of financial arrangements that may support alignment of public and private interests.

Further resources:

- ▶ Demystifying adaptation finance for the private sector (2016)
- ▶ Global Environment Facility resources on blended finance
- ▶ Blended Finance Taskforce
- ▶ Convergence – the global network for blended finance
- ▶ Blended Finance Archetypes
- ▶ OECD Principles for Public Governance of Public-Private Partnerships
- ▶ Public-Private Partnerships In Pursuit of Risk Sharing and Value for Money (OECD, 2008)
- ▶ OECD Review of Public Governance of Public-Private Partnerships in the United Kingdom
- ▶ IFC Advisory Services in Sustainable Business – Public Privateequity Partnerships: Accelerating the Growth of Climate Related Private Equity Investment



Case Study

Climate Insurance-Linked Resilient Infrastructure Financing (CILRIF)

Globally, cities face increasing risks from extreme climate events. Municipal level insurance could substantially reduce the financial burden on municipalities. The existing insurance products are typically renewed every 1-3 years and, therefore, offer limited cash flow certainty due to lack of visibility on premiums. This leads to difficulty in budgetary planning for climate-resilient infrastructure projects, which generally tend to target a longer time horizon. Climate Insurance-Linked Resilient Infrastructure Financing (CILRIF) is a long-term insurance solution linked with financing for climate-resilient infrastructure. Such a solution will enable cities to access affordable, 10–15-year climate insurance with pre-arranged premiums – contingent upon the cities’ commitment to invest in climate resiliency (funded via issuance of a separate financial product). Hence, cities would have access to post-disaster liquidity to support recovery. CILRIF proponent is the United Nations Capital Development Fund (UNDF), which has engaged with multiple city administrations to short-list three cities for pilot projects.

This case study has been adapted from The Climate Finance Lab. Full text available [here](#).

Table 6 Summary of Investor types and interest relating to blended finance. Source Bisaro and Hinkel (2018)

Financial arrangement aligning public and private interests and relevant investor	Public actor interest	Investor’s interest		
		General interest in adaptation	Source of capital	Liquidity
Private equity instrument and real estate developers	Reducing public expenditures	Adaptation projects involves activities that are part of core business	Own equity	Low to moderate
Public private partnership equity instruments and construction and real estate developers	Reducing balance sheet while maintaining moderate control of project outcomes			
Public private partnership bonds and institutional investors	Maintaining control of project outcomes while accessing debt markets	Investment horizon of adaptation projects matches long term liabilities	Short- and long-term policy holders	High
Public bonds and institutional investors				

Assess attractiveness of investment opportunities

Blended finance development may align closely with the project cycles mandated by international finance institutions. For instance, the EIB project cycle follows seven major stages of proposal, appraisal, approval, signature, disbursement, monitoring and repayment. The appraisal stage may involve the following activities:

- ▶ **Prioritise and package actions** – confirm priorities, map opportunities based on goals and requirements, screen the project lists, categorise and package according to adaptation type, financial needs, funding requirements. Consider clustering small projects into components of a larger project to leverage funding. Projects may be bundled based on geography, project type, or hazard they are responding to, in order to create economies of scale. Bundling projects in this way can help improve eligibility for funding, attract increased diversity of investors, support cost-sharing, result in lower project development costs and mitigate financial risk (ASAP, 2022). The Cities Climate Finance Leadership Alliance have also produced guidance on [Aggregation Interventions to Increase Urban Climate Finance](#) which provides a framework for aggregating interventions.
- ▶ **Stack a variety of funding and finance sources** – Ensure appropriate finance mix based on the risk profile of the project and the funds available with the project proponent. Different instruments can be combined at different stages or for different deliverables. [Financing the Resilient City: An ICLEI White Paper](#) provides a sample investment structure for a climate resilience project highlighting which type of funding and finance may be best aligned at each stage (Figure 4).
- ▶ **Highlight if the project is “bankable” using appropriate accounting practices** – Alternative accounting practices and economic assessments may be required to appraise adaptation options. This is because for many climate adaptation projects, benefits accrue years after project completion, benefits are often intangible, poorly understood and challenging to quantify. Appendix 2 presents further information on common methods to assess attractiveness of investments. that may be applicable to assess if adaptation projects are bankable, i.e., likely to receive financing from a fund, aligned with local, regional, and national priorities, clearly linked to identified climate needs, responds to fund criteria, leverages other sources, has assessment and feasibility studies, scope of impact and sustainability.

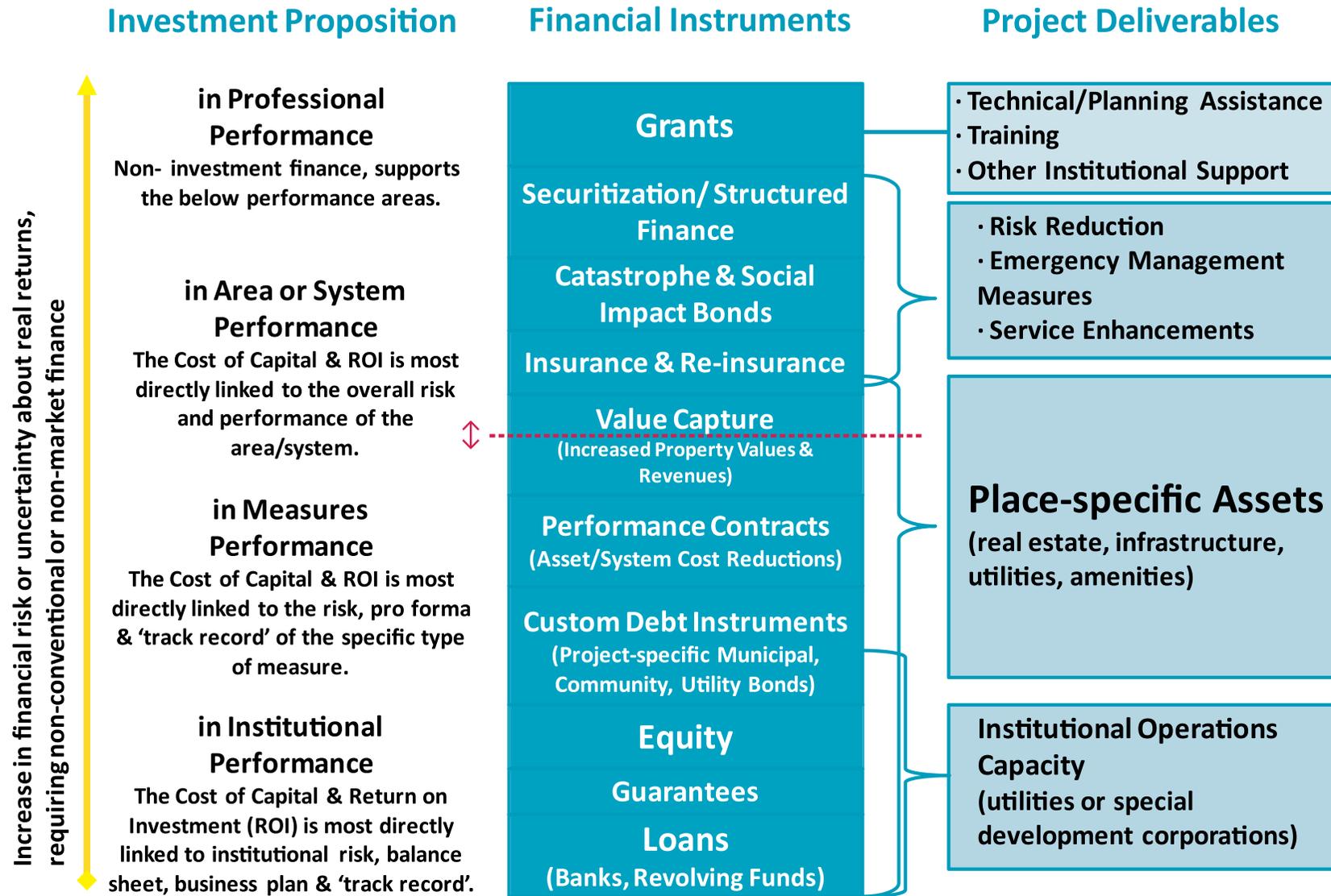


Case Study

Stormwater Retention Credit trading programme

In Washington, DC the Department of Energy and Environment (DDOE) was tasked with addressing stormwater runoff in the city. The capital cost of solving this problem was estimated to be more than \$7 billion, far greater than the department’s \$10 million annual budget. The DDOE proposed a solution to implement green infrastructure retrofits, which would be funded with private investment by launching the Stormwater Retention Credit (SRC) trading program. The SRC trading program and the subsequent purchase agreement programme have increased stormwater retention, restoring local water bodies, maximised cost savings and flexibility for regulated developers, and with the installation of more green infrastructure, created new green jobs and new green spaces in the city, benefitting local communities. *This text has been adapted from the GFI case study [here](#).

Figure 4 Investment Structure for Blended Finance. Source ICLEI



Further Resources:

- ▶ [Evaluating Blended Finance and Private Sector Support \(OECD\)](#)
- ▶ [Explainer: How to Finance Urban Infrastructure – by C40 Cities Finance Facility](#)
- ▶ [The Global Innovation Lab for Climate Finance \(The Lab\)](#) identifies, develops, stress tests, and helps launch innovative financial instruments that address investment barriers and drive private finance for energy efficiency, renewable energy, sustainable transport, climate smart agriculture, nature-based solutions, adaptation & resilience, and other sectors key to a sustainable economy. In six years, the Lab has supported the launch of 49 instruments, which have collectively mobilized over USD 2.3 billion, including USD 800 million from the private sector (CPI, 2020).
- ▶ [World Bank’s 2019 Municipal Public Private Partnership Framework](#)
- ▶ [Green Angel Syndicate](#) is one of the largest angel syndicates in the UK, and the only one specialising in climate change. The syndicate has launched an Enterprise Investment Scheme (EIS) co-investment climate change fund. The EIS is a government scheme that provides a range of tax reliefs for investors who subscribe for qualifying shares in qualifying companies. A limited company is needed as a pre-requisite to apply for financing.
- ▶ [Environmental Cost-Benefit Analysis \(Giles Atkinson and Susana Mourato, 2008\)](#)
- ▶ [US National Academies of Science’s Guidebook on Incorporating the Costs and Benefits of Adaptation Measures in Preparation for Extreme Weather Events and Climate Change](#)

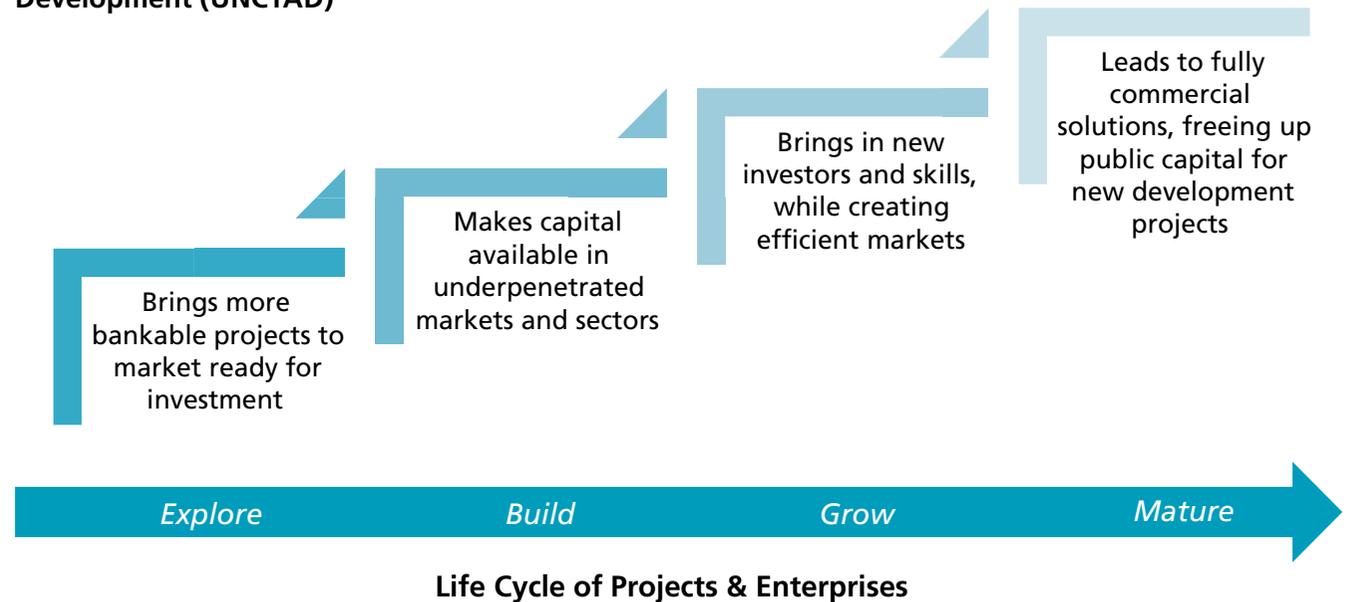
Support evolution of blended finance

The benefits of blended finance alter as the project develops, as illustrated in Figure 5. Public and private actors can both enhance access to adaptation finance. For example, public actors can provide gap funding to support commercialisation, e.g., through research and development, technical assistance, supporting pilot testing in the demonstration phase and uptake of the innovation. Public actors can also introduce policy reforms relating to intellectual property rights or royalty systems to support patenting systems for adaptation related innovation, which leads to internalisation of the

innovations’ benefits and encourages further private sector engagement. Such activities can support the development of a pipeline of bankable projects for investors with identifiable and stable revenues or structuring. Whilst these are reserved matters, Scottish actors can engage in conversations at the UK level and seek to influence change.

This should be captured and underpinned by monitoring and evaluation. Metrics can enhance the effectiveness of financing operations by enabling learning at the project level, monitoring at the portfolio level and informing investors and decision-makers (IADB, 2019).

Figure 5 Blended Finance Benefits by Stage. Source United Nations Conference on Trade and Development (UNCTAD)



Place-Based Use Case

Place-based financing aims to create economic and social outcomes through investing in a specific geographical region or community.

According to the Good Economy and Impact Investing Institute (2021), place-based investment is defined as “Investments made with the intention to yield appropriate risk-adjusted financial returns as well as positive local impact, with a focus on addressing the needs of specific places to enhance local economic resilience, prosperity and sustainable development”.

Enhancing place-based impact investment and community finance markets can potentially help climate adaptation at the local level, encouraging innovative, regionally focused financial instruments and institutions. Place-based finance isn’t necessarily separate from the blended finance and public finance use cases outline above.

This use-case explores the use of place-based financing when projects have a specific geographic focus. Financing may be targeted at areas which are experiencing decline, disadvantage, or enhanced climate risk.

Key activities to support financing place-based projects are set out below.

Work with those involved in placemaking

Packaging adaptation interventions as part of a broader set of initiatives, such as placemaking, allows for participation from various actors living or working in that place and supports transformational approaches. Place-based working in Scotland is encouraged and enabled by the [Place Principle](#). The Scottish Government’s commitment to the principle means that all major spending programmes are expected to take a place-based collaborative approach. The [Place Based Framework](#) provides a common framework for considering place-based working and is proposed for use by all capital spending programmes, across funding streams. The Framework suggests that before investing in a place, it is beneficial to create:

- ▶ A Place Narrative outlining the core nature of a place, reasons for intervention and what the future of place may look like
- ▶ Shared Place Actions describing how activities will be identified and prioritised, and align with other activities
- ▶ Place Oversight, identifying governance structures for how decision-making and leadership will be realised and sustained

Early engagement with stakeholders living or working in the place of interest, is needed to understand the requirements of all partners, identify regulatory or technical issues, and support early vision-setting. Appropriate governance should be established to enable partners to work together effectively. Alterations to governance structures may be necessary to accept certain types of finance and funding. Project preparation may need to happen at a regional level to ensure appropriate organisations working together to develop large-scale funding propositions.

Resources:

- ▶ [Nesta partnership toolkit](#) – Practical steps to help create a successful partnership, write an effective partnership agreement, and get collaboration off to a good start
- ▶ [The Place Guide](#) developed by Scottish Futures Trust provides a practical, step-by-step approach to implementing the place agenda collaboratively.
- ▶ [OurPlace.scot](#) is a site devoted to promoting the benefits of place & place-based working. It brings information, resources & case studies together in one place

Review finance instruments and sources available for place-based projects

Working with potential partners, develop a business case based on the needs of the partners and tailored to suit the local place. A clear case for support should be developed, which can then be used across multiple funding sources. There are often considerable transaction costs involved in preparing a place-based project for funding, e.g., project preparation, feasibility studies. Therefore, actors may be interested in identifying ways of reducing these costs, for instance by replicating a project that has been successful elsewhere (using a project blueprint).

In Scotland, the Place Based Investment Programme is a coordinated programme of place-based investments from targeted policy areas. In practice this will mean that each investment should:

- ▶ Consider at a national level how investment aligns with other planned investments in that locality, to streamline delivery and increase impact.

- ▶ Address the core questions set out in the Place Based Framework to ensure that the investment is relevant to the needs of the locality, fits with other local actions, and provides the basis for collaboration with partners.
- ▶ Help establish a local programme board which provides local oversight and a focus for community participation and collective leadership

It will then be important to identify instruments, actors and revenue / benefit streams of the proposed project. Different financial instruments and activities are suited to different types of adaptation. A regional approach using variety of funding and finance instruments may be needed to enable de-risking and long-term funding. Table 8 summarises identified types of finance relevant to place-based projects

Resources:

- ▶ [Emerging Funding Opportunities for the Natural Environment](#) – Esmee Fairbairn
- ▶ [C40 Cities Good Practice Guide on Creditworthiness](#) identifies areas to enhance municipal creditworthiness



Case Study

Green Growth Accelerator

The Green Growth Accelerator programme, developed by the Scottish Government with the support of the Scottish Futures Trust, was launched to provide a catalyst for public and private investment in low carbon infrastructure projects across Scotland. One ongoing project is the Highland Council's Climate Action Coastlines undertaking research and implementation of natural coastal adaptation solutions, including tree planting, peatland restoration, sand dune strengthening, saltmarsh restoration, and floodplain development. Further information on the accelerator [here](#) and the successful projects so far [here](#).

Table 8 Summary of Types of Finance relevant to place-based**Types of Finance relevant to place-based****Venture and Impact Capital – Impact Investing**

Impact investing aims to generate measurable social and environmental impact alongside financial return. Impact investing is an investment approach, and impact investors often participate in blended finance structures. For adaptation, a combination of innovative adaptation interventions alongside more conventional renewable energy projects could be bundled together to generate net positive aggregate revenue streams from which to pay back investors. (CRC / Khosla 2020).

Crowdfunding

Crowdfunding is the gathering of many investors in order to finance a project or a company. Crowdfunding is different from crowdsourcing, the latter a broader concept of leveraging small contributions (often philanthropic) from many parties to reach a goal.

The crowdfunding concept is based around the creation of a platform on which the capital investment required for a portfolio of projects can be aggregated from individual investors, to allow these projects to be financed and to provide a return for the investors who support projects (CRC / Khosla 2020). Placemaking aims to transform urban spaces into people places, providing high incentives for the public to invest in such a crowdfunded bond. Crowdfunding can support placemaking via bonds. The crowdfunding approach could create an efficient, scalable and cost-effective alternative to the more conventional public funding sources such as the Public Works Loan Board (PWLB). In addition, it offers a powerful and innovative way for local authorities to engage with citizens as investors. Crowdfunded bonds have used a Community Municipal Bond (CMB) structure, to be issued by a local authority (CRC / Khosla 2020).

Examples of actors include [frankly.green](#) a crowd investing platform that enables retail investors to finance green projects and companies in emerging markets. The platform brings together businesses driving a green agenda and investors seeking financial returns and environmental and social returns. [Abundance Investment](#) is also a platform which enables citizens to invest in businesses and councils that are developing 'the green infrastructure of tomorrow'.

Types of Finance relevant to place-based

Bonds

A bond is a type of debt instrument which can be used to raise funds for an issuer, such as a government or large company. Bonds involve multiple investors and are often managed via a financial intermediary such as an investment bank. A bond investor purchases the bond thus providing finance. A bond issuer raises capital through issuance of a bond for financing a project and can be private sector, public sector or a financial institution. Bonds may be advantageous to provide over a long timescale because large amounts of money can be raised with long repayment periods. Bonds are when an investor lends money, to a project, company or government for a specified time period, in exchange for regular interest payments referred to as 'coupon'. When the bond reaches maturity, the bond issuer returns the investor's money. Bonds can be either secured or unsecured debt. Secured bonds or "recourse-to-issuer-debt" are backed by collateral whereas unsecured bonds are issued without specific collateral.

Bonds can also be used to finance climate action through what is referred to as a green bond. The difference between green and regular bonds is that the issuer will include a "use of proceeds" clause which specifies that the financing must be used for green investments. Climate resilience bonds are suitable for entities that can borrow relatively inexpensively and that have high acute climate risk necessitating quick access to capital.

Green bonds may help attract private investment to adaptation through highly liquid debt instruments. Municipalities have issued green bonds in some places in the UK. The Place Based Climate Action Network in partnership with Abundance Investment have undertaken research to explore Community Municipal Investments (CMIs), which is a bond issued by local authorities through a crowdfunding platform giving residents the chance to support low-carbon projects, directly benefiting their own community. There is potential to adopt this mechanism for adaptation, or explore synergies between mitigation and adaptation projects further. Report available [here](#). C40 (2016) also produced a [C40 Cities Good Practice Guide – City Climate Funds: Sustainable Infrastructure Finance](#). It provides a step-by-step guide on how to issue a green municipal bond as well as guidance on how to finance urban infrastructure.

Value capture

Attracting private investment necessitates ability to generate revenues. Urban land adjustment where private land owners co-finance part of the infrastructure cost may be an option for adaptation projects (Bisaro & Hinkel, 2018). Another option to attract private sector investment is from renewable energy development (e.g., solar power) on the project site. Using mitigation-based revenue streams to subsidise the adaptation components of a project is increasingly being sought as a financing option. Tourism revenues from charging to visit site, may also be a source of income. Place-based charges such as community infrastructure levy introduced through planning or development contributions should also be explored.

Fees

A fee is a charge imposed to pay for a service or use of a facility. For adaptation projects, fees may help fund projects. For example:

- ▶ Property related fees – that local governments impose to provide services that have direct relationship on property ownership. Property related fees include water, stormwater and wastewater fees. Each local authority is responsible for the administration and implementation of council tax, which may include such fees.
- ▶ Development Impact Fees – Local governments may charge upfront fees for new development within a geographic area to fund projects that offset negative externalities associated with the development. Impact fees could be charges for impacts associated with increasing exposure of new development and surrounding areas to climate impacts, e.g. water management impact fees. This may follow the model set by Business Improvement Districts in Scotland.

Types of Finance relevant to place-based

Incentives

Incentives are methods to encourage certain action or investment in return for a reward. Commonly used incentive tools include tax credits, regulatory streamlining and exemptions from processes or standards. Incentives may be applied which encourage adaptation and resilience investment.

Grants

A grant is an instrument typically provided by government or Public Finance Institution that does not need to be paid back and the provider is not given shares in company. Grants may be able to fund part of or all of an adaptation project, reducing financial cost and increasing competitiveness.

Government grants available for placemaking may be appropriate for place-based adaptation, for example Scottish Government's Green Growth Accelerator.

Grants may also be delivered by philanthropic foundations or trusts. For example, the Pebble Trust, Robertson Trust, Crown Estate Scotland Sustainable Communities Fund and National Lottery Grants for Heritage

Grants may also be provided for research and/or to support the development of adaptation projects. For example, the Highlands and Islands Climate Change community grant is for researchers and communities to work together on a climate change project. Funders include research councils, government funding bodies etc.

A list of potential public and philanthropic grants is available in Appendix 1.

Payment for Ecosystem Services

Payment for ecosystem services (PES) involves payments to the managers of land or other natural resources in exchange for the provision of specified ecosystem services, over-and-above what would otherwise be provided. Payments are made by the beneficiaries of the services in question, for example, individuals, communities, businesses or governments. These are often voluntary systems. An example is the payment of a downstream hydro-electricity plant to land managers upstream in the water catchment, to maintain forests and reduce soil erosion, thus reducing operating costs and maintenance. Increasingly, a number of codes for carbon sequestration using the natural environment are emerging. These were initially voluntary codes but are now being adopted by Government. The codes are intended to capture the value of natural assets created which, aside from the carbon sequestration potential, also includes improved biodiversity and other environmental benefits. In addition to the sale of carbon, a market mechanism to sell biodiversity units is also emerging with the existence of a [Peatland Carbon Code](#) and [Woodland Carbon Code](#). Also, a [Saltmarsh Code](#), [Farm Soil Carbon Code](#) and [Hedgerow Code](#) are currently in development. Further information is available in the [Payments for Ecosystem Services: Best Practice Guide](#) (publishing.service.gov.uk).



Case Studies

IGNITION Project – Manchester

Since its inception in 2019, **the IGNITION Project** is providing the tools needed to increase the use of nature-based solutions (NBS), such as greenspace, green walls and rain gardens, in Greater Manchester. The IGNITION project created an extensive Evidence Base which brought together 1,000+ items of research to show that NBS can dramatically improve our climate resilience, whilst providing a huge range of social and economic benefits. However, due to the lack of public funding currently available for NBS, IGNITION seeks to encourage private investment to help build funding models in Greater Manchester.

The project is funded by Urban Innovative Actions (UIA), an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. There are twelve partners of the IGNITION project. Match funding is supplied by all partners, with a requirement for each partner to contribute 20% of total project costs out of their own resources – predominantly in the form of matched-in staff costs.

Vacant and Derelict Land Fund

The £1 Billion Challenge has identified 168 publicly owned sites that have been vacant and derelict for over 20 years and are now working with them as proof of concept projects with Scotland's Vacant and Derelict Land Taskforce to bring them back into productive use. Investors are committing finance for restoration of degraded sites to support them transitioning into business opportunities, which also deliver biodiversity benefits. Sites may be sold directly to investors for pre-approved green businesses, or a Vacant and Derelict Land Fund could be created to allow site owners to attract investment for remediation. The financial return would arise from the sale or leasing of restored sites. The Scottish Land Commission, Central Scotland Green Network Trust, James Hutton Institute and SEPA are all collaborating on this opportunity.

Community Municipal Investment Bond

UK's first Community Municipal Investment Bond for West Berkshire Council was launched in June 2020 with an IRR of 1.2% over 5 years. The bond is issued directly to the public in partnership with the online crowdfunding platform **Abundance Investment**. Individuals can invest from as little as £5 to support projects that align with the Council's plan to build a greener future for the

district. Crowdfunding can be both debt or equity based, depending on the underlying adaptation interventions, the risk profile of the return and available financing. The crowdfunding model allows organisations that provide small, low-risk loans to connect with individuals or groups that do not have easy access to finance. Such impact investments make a financial return while delivering measurable social and environmental improvements. (Case study adapted from CRC, 2020. Further information [here](#).)

Landscape Enterprise Networks (£1 Billion Challenge)

The **Landscape Enterprise Networks** (LENs) initiative brings organisations together to invest in specific landscapes. LENs links management and investment in landscapes to the long-term needs of business and society. It does this by helping businesses to work together to influence the quality and performance of the landscapes in which they operate. LENs provide business case for investing in landscape by providing a platform to aggregate payments for ecosystem services and blend these investments with public funding to enable delivery of further public goods. LENs was founded by Nestlé and 3 KEEL. In Scotland, SEPA, Nature Scot and Scottish Wildlife Trust are working with LENs to optimise impact for investment.

Implementing and expanding place-based projects

After securing finance and funding for place-based projects, implementation occurs, involving activities such as:

- ▶ Undertaking large-scale projects where multiple stacked or private finance is brought in
- ▶ Conducting continuous review and improvement based on analysis of agreed indicators and metrics of progress
- ▶ Securing long-term finance by getting capital on low returns and using guarantees for further risk and development
- ▶ Responding to consultation of grants programmes to campaign for adaptation to be incorporated as funding priority
- ▶ Centring equity considerations within ongoing funding of adaptation and resilience projects to ensure fair and just distribution of resources

Resources

- ▶ Georgetown's Equitable Adaptation Legal and Policy Toolkit
- ▶ The EU taxonomy for sustainable activities and the EU Taxonomy Compass contain example adaptation activities and how these may contribute to other areas such as mitigation, biodiversity or the circular economy.

Further information and support

Adaptation finance is a rapidly developing area. This guide lays out many of the emerging challenges and opportunities and provides practical suggestions for making progress. We welcome your feedback and suggestions for improving this resource and developing adaptation finance support for Scotland.

Adaptation Scotland provides a wide range of tools, resources and support to help organisations, businesses and communities adapt to climate change.

Contact Adaptation Scotland for advice and support

- ▶ adaptationscotland@sniffer.org.uk
- ▶ www.adaptationscotland.org.uk



Appendices

Appendix 1: Summary of potential adaptation funding opportunities

Opportunity

Grants – Philanthropic

The Pebble Trust – Offer grant funding for projects which support the vision of a more sustainable and equal society, where constraints on fossil fuels lead to a more localised economy with stronger, more resilient, communities, and where human activities take account of climate change and the wider environment. Who can apply – Applications can be accepted from charities, community groups, businesses or individuals, provided they can demonstrate that the expected outcomes contribute to the Pebble Trust’s vision, meet the charitable objectives and will benefit the wider community. The Trust mainly supports projects in the Highlands and Islands.

The **Esmée Fairbairn Foundation** have launched an **Environmental Finance and Learning Fund** to provide pathfinder funding for environmental initiatives.

Baillie Gifford Community Awards Programme is a grants programme which supports grass roots community organisations across the whole of Scotland. It replaces Foundation Scotland’s Express Grants programme. Priorities for the programme are: children and families, elderly people, education, environment, health, people who are physically disabled, homelessness, women and grass roots sports. Who can apply – Only constituted groups, with a governing document, can apply. Annual income in the most recent financial year must be less than £250,000.

Crown Estate Scotland – Sustainable Communities Fund – The purpose of the Community Capacity Grants Programme is to provide early stage financial support for community enterprise projects that contribute to local regeneration and sustainable development and, ultimately, help create great places to live, work and visit. It is looking for local projects with demonstrable community support that will help achieve the following objectives: Contribute to the regeneration of places through improvements to buildings or community spaces, making these places more attractive, accessible and beneficial to the community; and create self-sustaining community enterprises that will promote sustainable development through the provision of local economic, social, and/or environmental benefits. Grants are available to communities up to five miles from Scotland’s coastline or within five miles of the Crown Estate’s rural estates.

Scottish Education and Action For Development – SEAD Fund. SEAD provides small grants for individuals or groups for positive action, and campaigning. They fund proposals where the grant will have the most impact, for example, helping a new campaign to get started, or funding a specific concrete action for a local community. They promote social justice, with a current focus on climate justice, inequality, poverty, women’s rights, young people and their global rights and health justice. The SEAD Fund invites small community groups and individuals to apply for funds to run or kick-start campaign activity that engages with people, has a demonstrable impact, and aims to links local issues with those being experienced by others around the world. Fund is particularly interested in applications that focus campaign activity on the following areas: women’s rights, young people and their global rights, climate justice, inequality, poverty and health justice.

Opportunity

Grants – Philanthropic

Porticus UK – Supports charitable projects that promote human dignity and social justice through its grant giving programme in England, Wales and Scotland. Their strategic themes are education, society, faith and care, as well as in the field of economic development and climate change.

Ganochy Trust – looking to invest up to £15million for community groups and organisations in Perth and Kinross and across Scotland. The core purpose of the new funding strategy is to: Improve the Quality of Life for people; Develop and Inspire young people; Improve the build and natural environment for wide community use.

National Lottery Grants for Heritage A funding programme for projects that connect people and communities to the national, regional and local heritage of the UK. This includes natural heritage, with funding available at different tiers between £3,000 and £5 million.

National Lottery Awards for All (Scotland) – A quick way to apply for funding between £300 and £10,000 to support what matters to people and communities. Applications should do at least one of the following: bring people together and build strong relationships in and across communities; improve the places and spaces that matter to communities and help more people to reach their potential, by supporting them at the earliest possible stage. Applicants can be from voluntary organisations or public sector bodies. In addition, the National Lottery Community Fund also manage the **Climate Action Fund** and **Growing Great Ideas Fund** that provide funding across the UK.

Scottish Land Fund – The Scottish Land Fund supports rural and urban communities to become more resilient and sustainable through the ownership and management of land and land assets. Funded by the Scottish Government and delivered in partnership by The National Lottery Community Fund and Highlands and Islands Enterprise, it offers grants of up to £1 million to help communities take ownership of the land and buildings that matter to them, as well as practical support to develop their aspirations into viable projects.

Gordon & Ena Baxter Foundation – The Gordon and Ena Baxter Foundation strives to support a broad range of good causes, spanning a variety of key themes. These include but are not limited to: education and training; arts and heritage; health and community care; sports; conservation and the environment. The Foundation supports projects in the North East of Scotland and the Highlands & Islands.

Opportunity

Grants – Philanthropic

Foundation Scotland – Unlock our Future Fund – Foundation Scotland and Vattenfall. The European Offshore Wind Deployment Centre is owned and operated by Aberdeen Offshore Wind Farm Limited, a subsidiary of Vattenfall, which has committed to a community benefit scheme to benefit projects working within the boundaries of the local authority areas of Aberdeenshire and /or the City of Aberdeen. Applications must address all four of the following criteria: contribute to a climate smarter world with sustainability at its core; invest in community facilities and activities that are fit for the future and are environmentally sustainable, especially community spaces and transport; encourage projects which are innovative in their delivery; ensure a legacy and lasting impact, which clearly brings benefit to the local community.

Dulverton Trust: The Trust is keen to support the general conservation and protection of wildlife habitats within the United Kingdom. One of the funding categories is conservation looking at the resilience of the UK's wildlife habitat, which looks at protecting coastal and marine environments.

The Robertson Trust: The trust funds to charitable organisations that support people and communities in Scotland including constituted community groups and registered charities who are working to alleviate poverty and trauma in Scotland, and who have an annual income of under £2 million. Although the information provided on the trust website, is not directly aligned to conservation, the EFN report indicates that the Esmée Fairbairn Foundation and the Robertson Trust together account for over 50 per cent of all philanthropic foundation support for environmental causes in Scotland (awarded between 2012-2016).

Craignish Trust: The trust focuses on environmental and human rights issues as well as the particular special interests of the Trustees with previous awards being granted to grants to organisations working in conservation. The Craignish Trust specifically funds reforestation, habitat conservation including that for marine areas. Only charities can apply for the grant funding.

Garfield Weston Foundation: The trust supports a range of small community groups, to large national institutions, that have effective solutions to helping people most in need. Examples of grants made to the environmental area include sustainable land use & fishing, renewable energy, recycling schemes, biodiversity, species preservation, marine life, education, and climate change science. The types of grant fall into one of three categories: capital, revenue and project work. These can range from regular grants for applications below £100,000 and major grants for applications above £100,000.

Opportunity

Grants – Public

Woodland Improvement Grant – Woods In and Around Towns This option aims to provide support for operations that will contribute to the sustainable management of urban woodlands and provide a range of public benefits. Urban woodlands are those located within one kilometre of settlements with a population of over 2000 people. Support will be provided for applications that can: bring neglected woodlands into management, develop opportunities to use and enjoy existing and newly created woodlands, enhance woodland sites supported under previous programmes.

Peatland Action NatureScot – The Peatland ACTION project is helping to restore damaged peatlands in Scotland. Applications are open to all landowners and land managers through NatureScot’s Peatland ACTION Fund.

Future Routes Fund. The fund aims to help young people to improve their local environment, increase their knowledge and understanding of Scottish biodiversity, and to provide more opportunities for them to connect with nature. The fund is for projects run by 11-26-year olds and supports them to connect with nature and to make a positive impact on the environment in Scotland.

Biodiversity Challenge Fund – the Biodiversity Challenge Fund is a competitive fund for projects which improve and restore habitats, create/enhance habitats for key species. (Supports funding through the Scottish Rural Development Programme and aims to deliver Scotland’s Biodiversity Strategy).

SEPA Water Environment Fund – The Water Environment Fund enables rivers to be restored by 1. Repairing damaged urban rivers often in deprived areas to enhance the environment for the communities that live there. SEPA are creating attractive and accessible green river corridors within towns and cities that can be used for active travel and recreation, improving health and wellbeing. We help rivers contain flood waters and create new opportunities for local businesses and suitable development. 2. Removing and easing barriers to migrating fish and improving vital fish stocks. The fund is increasing the lengths of habitat accessible to native fish, helping to improve endangered populations and creating new opportunities for angling, tourism and recreation, bringing economic benefits and recreational opportunities to river communities. SEPA administers the Water Environment Fund on behalf of Scottish Government. SEPA works in partnership with local authorities, land and structure owners, fishery trusts and conservation bodies to deliver an annual programme of projects.

Scottish Landfill Communities Fund Projects must fulfil at least one of the ‘objects’ given in Regulation 29 of the Scottish Landfill Tax Regulations 2015 including the reclamation, remediation, restoration or other operation on land to facilitate economic, social or environmental use; to provide, maintain or improve a public park or other public amenity; the conservation or promotion of biological diversity through the provision, conservation, restoration or enhancement of a natural habitat or the maintenance or recovery of a species in its natural habitat; the maintenance, repair or restoration of a building, other structure or a site of archaeological interest.

Opportunity

Grants – Public

Nature Restoration Fund – Nature Restoration Fund – NatureScot: The Nature Restoration Fund (NRF) is a competitive fund. It encourages applications from projects that support actions that help nature recover across Scotland. The Fund has 2 themes: (1) Making Space for Nature (urban focused nature-based solutions for biodiversity and climate change); and (2) Helping nature recover (rural focused biodiversity enhancement, climate resilience and reinstatement). The Nature Restoration Fund, like the Biodiversity Challenge Fund, aligns with the IPBES direct drivers of biodiversity loss. All project proposals must demonstrate how the project will help to address climate change and/or its impacts.

Scottish Enterprise Grants – Scottish Enterprise’s new funding model is simpler and more inclusive, aiming to help create jobs and promote a greener economy. They will be promoting funding calls and grants from across partner organisations, as well as delivering a few targeted funds of their own.

Green Growth Accelerator – The Green Growth Accelerator will speed up delivery of low carbon infrastructure projects across Scotland and provide extra resources and technical support to local authorities to get projects off the ground more quickly. Once fully opened the programme will unlock £200m of public sector investment to drive Scotland’s transition to net zero and climate resilient places – with further investment from private sector also anticipated.

Appendix 2: Further information – common methods to assess attractiveness of investments

Private investors may be primarily driven by financial considerations. Methods to assess the attractiveness of investment opportunities (from the perspective of a private investor) may consist of static investment calculations or dynamic investment calculations.

Static Investment Calculation

► **Payback period** – the period of time required for the return on an investment to “repay” the sum of the original investment. Investments with a shorter payback period are considered favourable as the investor’s initial outlay is at risk for a shorter period of time. To calculate, take the project cash flows with the cash outflow in the first time period, and the cash inflows in the following periods (without considering any time value of the cash flow). The payback period is then the first period in which the sum of cash inflows outweighs the initial investment; that is, the first time period when the sum of cash outflows (negative value) plus the sum of cash inflows is greater or equal to zero.

It is possible to further refine the payback period indicator using the financial leverage ratio (Net Debt / EBITDA) although this is more relevant for debt type investments. HM Treasury Green Book suggests lowering the discount rate in

certain circumstances – which can also help increase viability. Time declining discount rates (DDR) may also be applied, which are a strategy for discounting to make future benefits more relevant to current investors and policy makers. DDR gives greater weight to project outcomes that may not be achieved until after project completion. Similarly, Social Discount Rates (SDR) support investments which have social and environmental benefits that lower financial discount rates.

Dynamic Investment Calculation

► **Net present value (NPV)** – is the present value of future cash flows discounted at a certain hurdle rate or discount rate, minus the initial investment. It provides a measure to analyse future cash flows compared to today’s investment expressed in today’s terms. The NPV allows for an analysis of the cash flows of all time periods, while also taking into account the time value of money (via the discount rate). Large organisations typically have a set of discount rates that they apply to different types of projects. Alternatively, professional advice can be sought from bankers or other advisors. Projects with a positive NPV generate more cash inflows than the initial investment, which is the usual minimum requirement for any investment.

When comparing two investment opportunities, choose the one with the higher NPV. The NPV is calculated by:

$$NPV = -I + \sum_{t=1}^n \frac{C_t}{(1+r)^t}$$

where I = investment in period 0, r = discount rate, n = number of periods and C_t = cash flow in period t

► **Internal rate of return (IRR)** – is the discount rate which, when applied to a stream of cash flows, generates a NPV of zero. The IRR can be compared to a hurdle rate (benchmark) or a discount rate. At the IRR discount rate, the net present value of the costs (negative cash flows) of the investment equals the net present value of the benefits (positive cash flows) of the investment. Accept investments that offer internal rates of return in excess of the benchmark or hurdle rate. When comparing two investment opportunities, choose the one with the higher IRR. In formula terms, the IRR is defined as

$$\text{The value of } r \text{ such that } -I + \sum_{t=1}^n \frac{C_t}{(1+r)^t} = 0$$

Where I =investment in period 0, C_t =cash flow in period t , r = discount rate and n =number of periods

It is not recommended to use IRR exclusively to compare two or more investments.

Sensitivity of NPV in relation to changes in discount rate should be accounted for, as the attractiveness of investments may also depend on the discount rate applied.

- ▶ The **WACC (Weighted average cost of capital)** takes into account the capital structure of a company/project (capital structure describes the financing mix of a company or project, which can consist of equity, debt and mezzanine instruments) and the respective financing costs. The formula for calculating WACC is:

$$WACC = w_d \times c_{d,pretax} \times (1 - t) + w_e \times c_e$$

Where $w_d = \frac{debt}{debt+equity}$, $w_e = \frac{equity}{debt+equity}$, $c_{d,pretax}$ = cost of debt (pre-tax) e.g. interest rate, t = profit tax rate and c_e = cost of equity, i.e. return expectations of equity investors. The WACC is the minimum return that a company must earn on its asset base to satisfy all capital providers. Companies can use the WACC to decide if they should undertake a project or not. The project return should be greater than the current WACC.

Glossary

This section includes definitions of key terms used within the guide.

Climate finance is defined by the UNFCCC Standing Committee on Finance (2014) as finance which ‘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.’² 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’³. This holistic framing incorporates a wide range of approaches to financing, for activities across both mitigation and adaptation globally. The focus of this guidebook, however, is on adaptation finance in the context of Scotland. Furthermore, it is highlighted that climate finance is narrower than sustainable, or ‘green’ finance. Both are related but sustainable finance is normally also concerned with broader social and economic activity, whilst ‘green’ means broader environmental objectives.

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

Adaptation finance is the delivery of finance or capital to support activities which respond to and prepare for climate impacts. Adaptation finance is context specific and dynamic. Adaptation finance can involve a range of financial instruments, that include (but is not limited to) debt, guarantees and equity, and depending on the source of the definition, grant funding as well.

Adaptation finance gap is defined as the difference between the estimated costs of meeting a given adaptation target and the amount of finance available to do so (UNEP, 2014).

Adaptation is “In human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects” (IPCC, 2022).

Climate resilience is the ability to anticipate, to prepare for and to respond to hazardous climate events, as well as climate threats and vulnerabilities.

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Adaptation
Scotland

supporting climate change resilience