

November 2022

ENHANCING LONG-TERM LOW-EMISSION DEVELOPMENT STRATEGIES

Guidance document:
**Macroeconomic
and Fiscal Issues**

CONTENTS

<u>Executive Summary</u>	3
<u>Introduction</u>	5
<u>Overarching guidance</u>	7
<u>Priority areas</u>	12
<u>Next steps</u>	18
<u>Annex</u>	
<u>Resources</u>	19
<u>Case studies</u>	21
<u>Fiscal instruments taxonomy</u>	28
<u>Acronyms</u>	28



EXECUTIVE SUMMARY

Macroeconomic and fiscal issues are currently neglected in long-term strategies (LTS).

Signatories to the Paris Agreement are committed to set out an LTS, framing national pathways for decarbonization and climate-resilient development up to 2050. Despite the importance of understanding the impact of climate change and climate policy on the macroeconomy and fiscal position, this aspect is largely absent from LTS published to date.

By integrating macroeconomic and fiscal issues in the LTS, countries can understand the impact of physical climate risks and the low carbon transition, leverage new green opportunities and mobilise finance to meet investment needs. Physical climate change and the transition to a low carbon economy are likely to have material consequences for the macroeconomic and fiscal positions of low- and middle-income countries, but also create opportunities in terms of green investments and job creation. The LTS is an opportunity to respond to those risks.

This note provides an overview of how policymakers can more systematically account for macroeconomic and fiscal issues in the LTS. The appropriate level of detail will vary depending on countries' resources, but all can cover:

- **Information:** Assessing macroeconomic and fiscal risks to inform target-setting and prioritisation. This includes analysing how physical climate change and the transition to a low carbon economy can affect the domestic economy, as well as estimating the LTS investment need.

- **Interventions:** Identification and appraisal of key policies and actions. This includes identifying green fiscal instruments that can enable the low carbon transition, developing strategies to manage fiscal risks such as disaster risk financing and exploring green industrial opportunities.
- **Implementation:** Putting in place a supportive enabling environment to ensure the plans in the LTS are credible. This includes assigning institutional roles, formulating financing strategies, developing inclusive processes for stakeholder engagement and updating the strategy over time, and building capacity where needed.

In four priority areas, across the information, interventions and implementation categories, the note provides more detailed guidance. These priority areas can unlock the transformative potential of the LTS:

Information:

- **Assess** macroeconomic and fiscal risks and opportunities: Assessing the impact of heatwaves, floods and other physical hazards, as well as of global and domestic climate policy, is crucial to understand how key macroeconomic and fiscal indicators will be impacted. Through this analysis, the LTS can support early action on risk mitigation whilst leveraging opportunities to deliver wider economic development.
- **Analysis** of capital investment need. Implementing the LTS will require large-scale investment in mitigation and adaptation. By more systematically appraising investment needs, the impacts of planned interventions and potential financial models, the LTS can provide a credible evidential basis to attract capital at scale.

Intervention:

- **Include climate change considerations in fiscal instruments and fiscal reforms.** Fiscal instruments have the potential raise finance for the low carbon transition and incentivise a shift to a low carbon society. At the same time, fiscal instruments such as fossil fuel subsidies can inadvertently counteract the objectives of the LTS. By assessing existing and potential fiscal instruments, the LTS can serve as an entry point for making integrated decisions on fiscal reforms aimed at enabling the low carbon transition.

Implementation:

- **Access international climate finance.** International climate finance can be a key source of concessional finance for low- and middle-income countries, in particular in the short term. The LTS provides clarity of policy direction, which can support the mobilization of international climate finance. Implementing the LTS will require building climate finance readiness to optimise access to sources of international climate finance.

The guidance set out in this note provides practical steps to integrate macroeconomic and fiscal issues into LTS, supported by public datasets and resources. Further work can deepen this in country-specific contexts, developing institutional frameworks and processes of capacity building and monitoring, reporting and verification (MRV) to support and sustain these efforts.

This report was prepared with analytical support from Vivid Economics.



INTRODUCTION

Long-term strategies (LTS) frame national pathways for decarbonization, adaptation and economic development up to 2050. Signatories to the Paris Agreement are committed to set out an LTS, with the scope and coverage dependent on the country's resources and capacity. As of September 2022, 53 countries have submitted Long Term Strategies to the United Nations Framework Convention on Climate Change (UNFCCC), of which eight are from lower-middle-income countries and 11 are from middle-income countries.^{1 2}

This note provides practical guidance for integrating macroeconomic and fiscal issues into LTS, based on the experience of middle and lower-income countries. It highlights the importance of taking macroeconomic and fiscal issues into account when preparing the LTS and sets out actionable steps countries can take to further integrate these issues into the LTS, drawing on evidence of best practice from existing LTS and wider literature. The objective is to provide user-friendly, practical guidance for the integration of macroeconomic and fiscal issues into the LTS, making realistic allowances for differences in country specific capabilities such as technological and financial resources.

BOX 1 | THE GUIDANCE HAS BEEN DEVELOPED IN CONJUNCTION WITH STAKEHOLDERS INVOLVED IN THE PREPARATION OF LTS

- A review of low- and middle-income countries' LTS identified the current coverage of macroeconomic and fiscal issues as well as the type and depth of analysis. It identified case studies where these issues have been incorporated
- A literature review complemented the review of LTS, highlighting best practices and existing planning guidance that can be translated into LTS
- Engagement with stakeholders involved in the LTS preparation process in low- and middle-income countries informed an assessment of key gaps in current planning. This informed the focus areas for this note
- The guidance was prepared in conjunction with experts on the specific areas and validated in stakeholder workshops

The physical consequences of climate change and the low-carbon transition will have pervasive macro-fiscal consequences. Accounting for these impacts in the LTS can support better decision making and make the credibility of investment plans more visible. Key issues to account for include:

- **Increased frequency and severity of physical hazards** – heatwaves, floods, droughts and cyclones, as well as changing temperatures and precipitation patterns, are expected to increase costs and reduce productivity, leading to a deterioration in the government's long-term fiscal position.^{3 4} This may be exacerbated by short-term volatility from acute hazards such as floods and droughts, both those which occur domestically and or in other countries.
- **Changing production and consumption patterns to decarbonise** – demand for renewable energy, new green technologies and commodities needed for the transition will increase, leading to opportunities for investment, job creation and other benefits (such as energy security or improved air quality).^{5 6} On the other hand, industries such as fossil fuel extraction are expected to decline, with sizeable implications for resource-rich countries, in particular fossil fuel exporters. Accounting for the impacts on jobs and income across all sectors of the economy is critical to achieving a just transition, in which losers from the transition are adequately protected.⁷
- **Increased need for investment** – meeting net zero emissions is estimated to entail cumulative investments of USD 275 trillion between 2021 and 2050, equivalent to 7.5% of GDP, which needs to be supported by very substantial flows of public and private finance.⁸ To attract finance at this scale, low and middle income countries will need to embed these flows in a credible long-term macroeconomic vision.

Only few published LTS feature macroeconomic and fiscal issues in, but significant opportunities exist to increase the coverage. LTS published to date incorporate some aspects of macroeconomic and fiscal issues,⁹ such as the on the impact of the low carbon transition on labour markets and the implications of a carbon tax on government revenues and emissions. However, there is relatively limited evidence that Finance Ministries have comprehensively assessed the risks or investment need associated with delivering the LTS or considered how to finance these investments.

The guidance outlines actions to integrate macroeconomic and fiscal issues as well as detailed step-by-step guidance for four priority areas. In addition to overarching guidance on how wider macroeconomic and fiscal issues can be integrated in the LTS and on key aspects for a successful delivery and implementation of the LTS, thnote provides a step-by-step guide for four priority areas:

- **Macroeconomic analysis:** an analysis of the impact of the low carbon transition and physical climate change on indicators such as GDP, employment and inflation in order to inform decisions.
- **Investment need:** a characterisation of the capital required to deliver the transition to a low-carbon climate-resilient economy, to obtain a granular understanding of both the type and scale of investment, which can enhance the credibility of the LTS and support mobilization of finance.
- **Climate finance:** outlining an approach to mobilise sufficient international climate finance in order to deliver a proportion of mitigation and adaptation investments in the near term.
- **Fiscal instruments:** fiscal reforms can enable mitigation and adaptation action by raising revenue for the public sector and by influencing private sector behaviour.

The step-by-step guidance is complemented with case studies and a selection of resources, such as toolboxes, datasets and useful further reading.



OVERARCHING GUIDANCE

This section outlines actions to integrate macroeconomic and fiscal issues in LTS. It answers the following questions:

- What does the guidance cover, and how can it be interpreted?
- What is the guidance for integrating macroeconomic and fiscal issues within the LTS?
- How can the guidance be delivered?

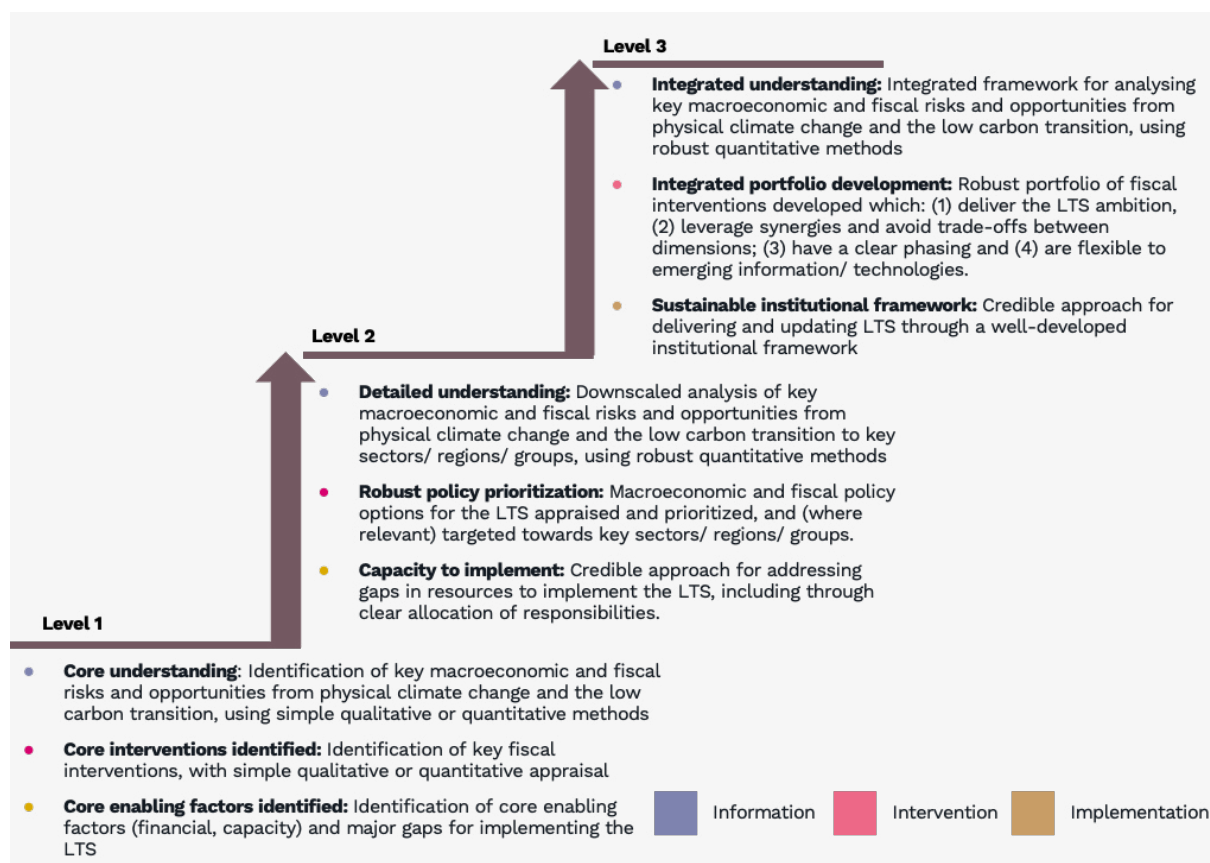
What does this guidance cover, and how can it be interpreted?

This guidance is aimed at policymakers in low-and-middle income countries who are responsible for designing LTS. While some countries are in the process of developing a LTS or are yet to start, some countries have already submitted LTS to UNFCCC. This guide is intended for use by countries at different stages of the LTS development process, enabling policymakers to enhance LTS over time. This guidance outlines actions that countries can take across three components:

- **Information:** analysis to inform target-setting and prioritization
- **Intervention:** identification and appraisal of key policies and actions
- **Implementation:** developing a supportive and sustainable enabling environment

To allow for different country starting points, this guidance is structured around three different archetypes, representing levels of development of the LTS. Countries can take different approaches to LTS development to meet local priorities and needs, as outlined in Figure 2. The appropriate level will vary according to country-specific features such as technical, financial and human resources. A level 1 LTS sets out key issues, interventions and enabling factors in a systematic but relatively informal way, with little quantitative analysis. A level 2 LTS builds on this with quantitative evidence to support initial priority interventions and a plan to put enabling conditions in place. A level 3 LTS is the most advanced, with long-term trajectories of intervention supported by integrated modelling of impacts on society and the economy, supported by a sustainable institutional framework. Countries can aim for the highest feasible level based on their context and enhance the LTS over time.

Figure 1: Three archetypes of LTS development to cover different country contexts



What is the guidance for integrating macroeconomic and fiscal issues within the LTS?

Figure 3 outlines a set of actions for integrating macroeconomic and fiscal issues into the LTS and contributing to the delivery of the LTS, disaggregated into the information, intervention and implementation categories.

Figure 2: Actions for integration of macroeconomic and fiscal issues and priority areas

Information Qualitative and quantitative analysis to inform target-setting and prioritisation	Intervention Identification and appraisal of key policies and actions	Implementation Supportive enabling environment to ensure credible implementation
Analyse: <ol style="list-style-type: none"> 1 macroeconomic and fiscal risks and opportunities arising from domestic and global trends (climate policy and physical climate change) 2 capital investment requirements for delivering LTS 	Develop: <ol style="list-style-type: none"> 3 financing strategy for the LTS 3 fiscal instruments to incentivize the transition disaster risk financing strategy and other instruments to manage fiscal risks green industrial policy to leverage opportunities from global low carbon transition 	Enhance capacity for: <ol style="list-style-type: none"> 4 accessing international climate finance enabling private sector investment ensuring a just transition

Information

The analysis of physical and transition impacts can be an essential first step in identifying risks and opportunities. As well as identifying core impact channels, such as changing commodity prices, damages and losses and green industrial opportunities, Finance Ministries

can consider quantifying impacts to key macro-fiscal indicators such as GDP, employment, inflation, current account deficits, tax revenues and the debt-to-GDP ratio. As the impact of physical climate change and the low carbon transition is likely to differ across sectors, there is a need to understand the effect on key economic sectors. Risks might include reduced fossil fuel use, which is expected to cause a net loss of 400,000 jobs in power generation by 2030,¹⁰ reduced tax revenues and exports for producers, and lead to stranded assets against which debt is secured.¹¹ Opportunities may include employment gains in sectors such as renewable energy, construction and waste and recycling. Sectoral modelling or risks and opportunities and leveraging existing macro-economic models can contribute to an understanding of the implications for the domestic economy and fiscal position.¹² As an example, North Macedonia found that up to 10,000 jobs could be created each year in green sectors if the policies included in the ambitious scenario in the LTS were implemented.¹³

Estimating the investment need associated with the LTS can strengthen the LTS' credibility and mobilize finance for delivery. Materialising the opportunities from the low carbon transition and creating resilience to climate change is expected to require investments of up to USD 60 trillion globally by 2050.¹⁴ However, flows of finance to least developed countries (LDCs) and small island development states (SIDS) have largely been overlooked when it comes to receiving pledges of climate finance, especially in hard to abate sectors such as Agriculture, Forestry and Other Land Use (AFOLU). The LTS can be an opportunity to estimate the investment need associated with delivering LTS by sector and over time and to quantify the largest finance gaps. In addition, the LTS can contribute to an understanding of the barriers to climate investment and set out a strategy for addressing these. Cambodia conducts an assessment of the investment need for the LTS and estimates that the public financing need for the LTS will amount to almost USD 9 bn for the 2025-2050 period. New public borrowing, shifts in public spending on economic services and policy reforms in the transportation sector are estimated to cover 74% of the total requirements, with international climate finance expected to meet the remaining requirements.¹⁵

Interventions

Understanding fiscal impacts of physical climate risks is particularly important for long-term fiscal stability. Physical risk is expected to cause the costs of extreme weather events to increase by 20% globally, equivalent to losses of around USD 100 billion per year.¹⁶ The relief, repair and reconstruction costs arising from physical climate risk are likely to be borne by both the public and private sector, leading to a need for increased public expenditure and budget reallocation as well as new strategies for managing fiscal risks, such as risk pooling and regulations.^{17,18} LTS preparation can be an entry point for identifying relevant risks and options for managing these risks, such as disaster risk financing instruments to manage expected increases in disaster relief and recovery expenditure.

Green fiscal reforms, such as removal of fossil fuel subsidies, carbon taxes and fiscal incentives to shift to low-carbon technologies, can enable LTS delivery. Green fiscal reform can both direct private sector investment towards meeting LTS targets and raise additional revenue for public investment.¹⁹ In preparing the LTS, Finance Ministries can consider appraising potential fiscal instruments and aim to integrate them in an overarching green fiscal reform. The LTS can point to sectors where fiscal measures are most necessary, assess potential fiscal instruments against their impact on environmental indicators such as emissions, as well as its fiscal and distributional impacts to get an understanding of the cost and benefits of the instrument and its suitability in the domestic context. Morocco's LTS outlines a strategy for green fiscal reform in the industrial sector and suggests implementing taxes, a carbon market and targeted subsidies to direct investments and incentivize consumption of low carbon products.²⁰

Implementation

Implementing the LTS will require large-scale finance mobilization from both public and private sources. The LTS is an opportunity to conduct an analysis of current sources of climate finance and identify currently untapped opportunities for new sources of climate finance, both from national and international sources. However, barriers to private investment (such as uncertainty regarding new technologies, lack of regulatory frameworks and low perceived or actual returns), combined with limited domestic fiscal resources create a need for international public finance in the short term.²¹ Finance Ministries should outline how climate finance can deliver LTS priorities and look to enhance climate finance readiness, including through developing the required policy, regulatory and institutional enabling environment. Best practice LTS can aim to target key sectors that are most suitable for attracting international climate finance and match the project pipeline to specific sources.

As an example, South Africa's Low Emission Development Strategy identifies potential sources of finance and prioritises developing a comprehensive climate finance strategy.

The checklist below outlines a set of steps needed to deliver the actions listed above, across levels 1 to 3. A selection of resources, such as toolboxes, datasets or useful further reading can be found in Annex 1: Resources. The next chapter goes into four of these action areas in detail, providing step-by-step guidance.

BOX 2 | ENABLING FACTORS FOR LTS FORMULATION AND IMPLEMENTATION

A set of enabling factors can support the adoption of the guidance set out in this note. Three key areas are on commitment, engagement and capacity.

- Commitment to climate action is an obvious pre-condition for a credible LTS. This can either take the form of a specific mandate or the embedding of climate targets in broader national development strategies. It is critical that responsibility is allocated to relevant decision makers: active participation by Finance Ministries in macroeconomic or fiscal planning is therefore essential.
- Inclusive engagement can ensure that there is sustainable support for the LTS. This can include dialogue with a range of stakeholders, so that their priorities and constraints are understood, and awareness raising so that the population at large is informed on the objectives and content of the LTS. In the development of macroeconomic and fiscal plans, engagement with communities and sectors that face potential losses is of particular importance in order to promote a just transition, while engagement with the local and international financial sector can help identify practical ways to scale investment.
- Many of the steps in the guidance require the use of advanced data analysis, which in turn may require investment in local capacity. To make this more efficient, policymakers can establish institutions with the mandate to maintain these capacities over time (for example, monitoring fiscal risks) and leverage expertise from the private sector or overseas.

Figure 3: Three archetypes to cover different country contexts

		Level 1	Level 2	Level 3
Information	Macroeconomic and fiscal analysis <ul style="list-style-type: none">What are the key climate change related risks and opportunities for the domestic economy?What are the impacts of climate change and climate policy on key macroeconomic indicators (employment, inflation, GDP)? Capital investment need <ul style="list-style-type: none">What is the required level of investment needed to deliver the LTS?What are the (domestic and international) sources of finance available?	Identify core channels of impact	<input type="checkbox"/> Identify key risks and opportunities	<input type="checkbox"/> Identify key risks and opportunities <input type="checkbox"/> Develop scenarios for economy, climate change, climate policy
		Implications for the domestic economy and fiscal position	<input type="checkbox"/> Qualitative assessment of risks and opportunities	<input type="checkbox"/> Sectoral modelling of risks and opportunities <input type="checkbox"/> Leverage existing macroeconomic models to analyse macro-fiscal impact
		Understand the investment need	<input type="checkbox"/> Estimate investment need associated with delivering LTS	<input type="checkbox"/> Estimate investment need associated with delivering LTS by sector
		Outline a portfolio of interventions	<input type="checkbox"/> Identify priority short-term investments	<input type="checkbox"/> Outline a timeline of investments by sector
		Sources of finance and financing strategy	<input type="checkbox"/> Analyse available sources of finance <input type="checkbox"/> Estimate investment gap	<input type="checkbox"/> Quantify gaps in finance <input type="checkbox"/> Identify barriers and solutions
			<input type="checkbox"/> Quantify gaps in finance <input type="checkbox"/> Identify barriers and solutions <input type="checkbox"/> Develop investment strategy	
Intervention	Green fiscal instruments <ul style="list-style-type: none">How can fiscal instruments be used to finance the LTS and enable the transition?	Identify available instruments and levers	<input type="checkbox"/> Analyse relevant fiscal instruments in place <input type="checkbox"/> Identify potential fiscal options <input type="checkbox"/> Assess suitability of fiscal options	<input type="checkbox"/> Analyse relevant fiscal instruments in place <input type="checkbox"/> Identify potential fiscal options <input type="checkbox"/> Assess suitability of fiscal options <input type="checkbox"/> Assess potential revenues and costs of fiscal options
		Assess suitability of instruments		
		Instrument selection and design	<input type="checkbox"/> Prioritize high impact fiscal options	<input type="checkbox"/> Prioritize fiscal options <input type="checkbox"/> Broader green fiscal reform
	Fiscal risk management <ul style="list-style-type: none">What are the main climate change related fiscal risksHow can these risks be managed?	Assess physical and transition fiscal risks	<input type="checkbox"/> Identify key fiscal risks from physical climate risk and the global low carbon transition <input type="checkbox"/> Outline channels of impact of fiscal risks on key indicators	<input type="checkbox"/> Identify key fiscal risks from physical climate risk and the global low carbon transition <input type="checkbox"/> Outline channels of impact of fiscal risks on key indicators <input type="checkbox"/> Quantitatively analyse fiscal risks
		Risk management strategy	<input type="checkbox"/> Identify options for managing fiscal risks (disaster risk financing, economic investments)	<input type="checkbox"/> Appraise policy options for managing fiscal risks (disaster risk financing, economic investments) <input type="checkbox"/> Develop strategy to manage fiscal risks <input type="checkbox"/> Strengthen institutional processes for managing climate-related fiscal risks
	Green industrial strategy <ul style="list-style-type: none">What are the economic opportunities from a global low carbon transition?How can these opportunities be realized?	Identify key sectors	<input type="checkbox"/> Identify green subsectors with potential for growth <input type="checkbox"/> Prioritize subsectors with comparative advantage	<input type="checkbox"/> Identify green subsectors with potential for growth <input type="checkbox"/> Prioritize subsectors with comparative advantage <input type="checkbox"/> Analyse barriers to growth in prioritised subsector
		Policy and regulation prioritisation	<input type="checkbox"/> Identify priority policy and regulatory options for subsector growth	<input type="checkbox"/> Identify priority policy and regulatory options to support subsector growth <input type="checkbox"/> Integrate interventions within sectoral and national strategies
Implementation	Accessing international climate finance <ul style="list-style-type: none">How can climate finance readiness be improved to access available international climate finance?	Assessment and scenarios	<input type="checkbox"/> Analyse existing sources of climate finance <input type="checkbox"/> Identify opportunities to access new sources of climate finance	<input type="checkbox"/> Analyse existing sources of climate finance <input type="checkbox"/> Identify opportunities to access new sources of climate finance
		Sector and project prioritisation	<input type="checkbox"/> Identify which sectors are best suited to international climate finance	<input type="checkbox"/> Identify which sectors are best suited to climate finance <input type="checkbox"/> Match project pipeline to specific sources
		Barriers to accessing finance	<input type="checkbox"/> Identify key overarching barriers	<input type="checkbox"/> Identify overarching barriers <input type="checkbox"/> Identify instrument/sector specific barriers
		Climate finance readiness	<input type="checkbox"/> Develop donor partnerships <input type="checkbox"/> Identify factors for readiness	<input type="checkbox"/> Develop donor partnerships <input type="checkbox"/> Develop strategy to improve readiness
	Enabling private sector investment <ul style="list-style-type: none">How can private sector investment be incentivised?	Develop investment plan	<input type="checkbox"/> Identify priority short-term investments	<input type="checkbox"/> Outline a timeline of investments by sector, identifying investments with role for private sector <input type="checkbox"/> Develop investment plan <input type="checkbox"/> Develop pipeline of potential private projects
		Identify barriers and solutions	<input type="checkbox"/> Identify key barriers and solutions to unlocking private sector finance	<input type="checkbox"/> Identify sector-specific barriers and solutions to unlocking private sector finance <input type="checkbox"/> Identify key barriers and solutions to unlocking private sector finance
Support project implementation			<input type="checkbox"/> Develop institutional framework to coordinate project finance with investors	

PRIORITY AREAS

This guidance notes provides a step-by-step guide for four priority areas. A review of published LTS and stakeholder input suggests these are areas where additional guidance would be useful. Table 1 outlines the importance of each priority area, as well as how each priority area could be integrated within a LTS at levels 1 – 3.

The step-by-step guide for each priority area is presented in the charts on the subsequent pages. The guide outlines a series of steps and sub-steps needed to deliver outputs for each LTS level. The charts are designed so that policymakers can trace the colour-coded arrows to identify the relevant sub-steps for their context.

The guidance is supported by case studies of analysis related to the four priority areas. The case studies draw on a range of published LTS and other climate change plans to demonstrate what is achievable in the preparation of the LTS. Figure 4 summarises the case studies, which are included in the Annex 2: Case studies.

Table 1: *Summary of priority areas*

Priority area	Importance	Level 1	Level 2	Level 3
Macro-economic analysis	<ul style="list-style-type: none"> Actions to limit global warming could create up to 24 million jobs.²² Analysing the impact of the low carbon transition and physical climate change on key macro-fiscal indicators such as GDP, inflation and debt levels can inform policy. For example, climate change is estimated to cause debt to increase by USD 168 bn between 2018 and 2028 in developing countries.²³ 	Identify key macroeconomic and fiscal impact channels to understand key risks and opportunities.	Quantify the impact on key macroeconomic indicators to understand key risks and opportunities.	Comprehensive modelling of impacts on macroeconomic and fiscal indicators, to understand key risks and opportunities.
Investment need	<ul style="list-style-type: none"> Investment in adaptation and mitigation is estimated to amount to up to USD 60 trillion globally by 2050.^{24 25} Estimating capital investment required for the strategy enhances credibility of LTS and supports mobilization of finance. 	Characterise total investment needs to inform a financing strategy.	Assess sectoral investment needs and analyse financing gap to develop solutions for mobilising finance.	Develop financing strategy with pipeline of bankable projects for financing the LTS.
Fiscal instruments	<ul style="list-style-type: none"> Fiscal reforms can raise revenue for the public sector, but can also influence private sector behaviour. 	Identify potential fiscal options to inform fiscal policy	Appraise and prioritise fiscal policy options to inform fiscal policy	Appraise and prioritise fiscal policy options and outline commitment to green fiscal reform
Climate finance	<ul style="list-style-type: none"> International climate finance accounts for 80% of total climate finance mobilised by developed countries²⁶ The LTS can outline approach to mobilizing international climate finance 	Identify key international climate finance opportunities and barriers to accessing finance, to inform approach for improving readiness.	Analyse sources of climate finance for interventions included in LTS and develop strategy to improve climate finance readiness.	Analyse sources of climate finance for interventions included in LTS and develop strategy to improve climate finance readiness.

Figure 5-8 give a step-by-step overview of how to implement the four priority areas into **LTS**. Annex 1: Resources gives an overview of the relevant resources for each of these steps.

Figure 4: *Summary of case studies*

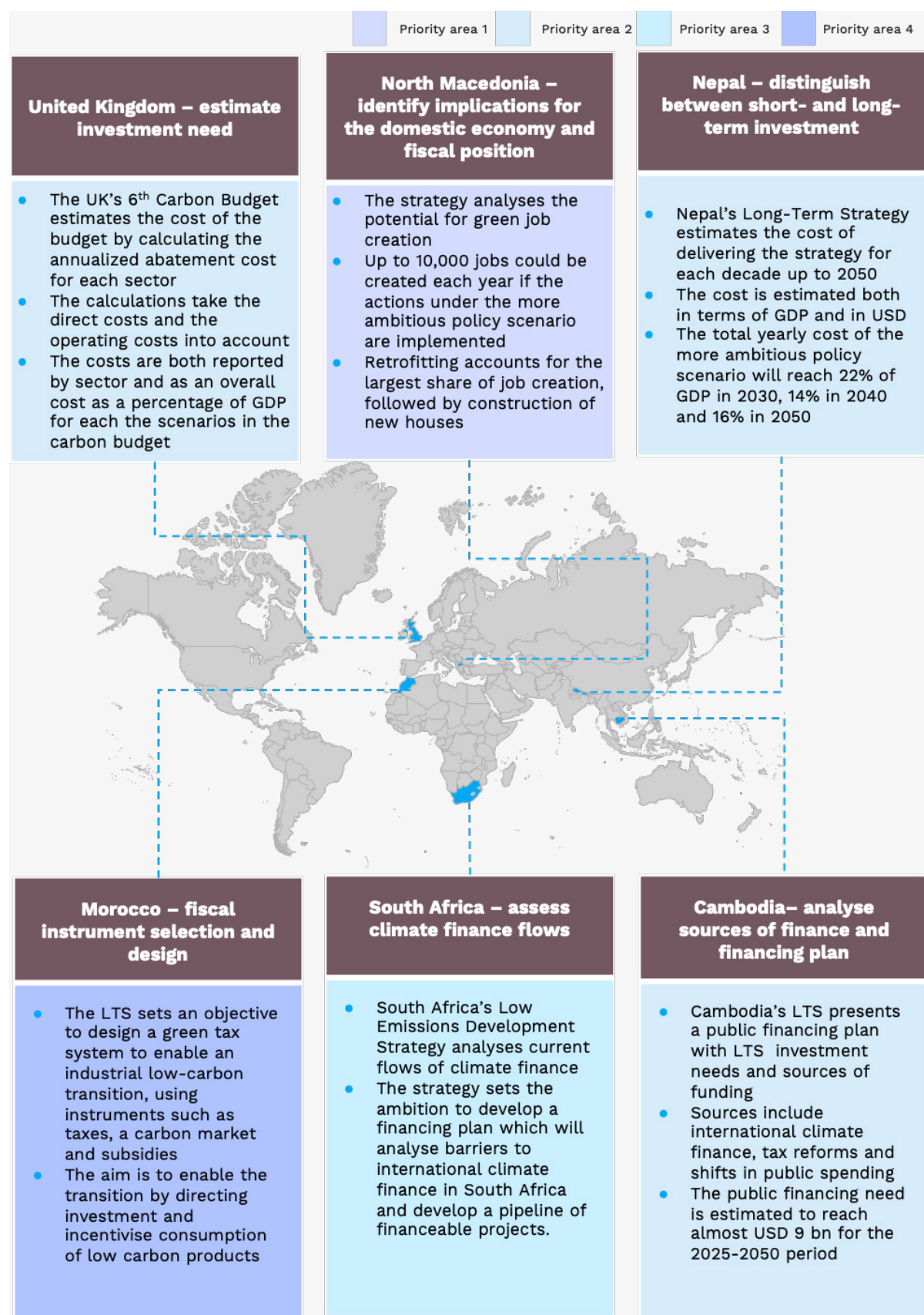
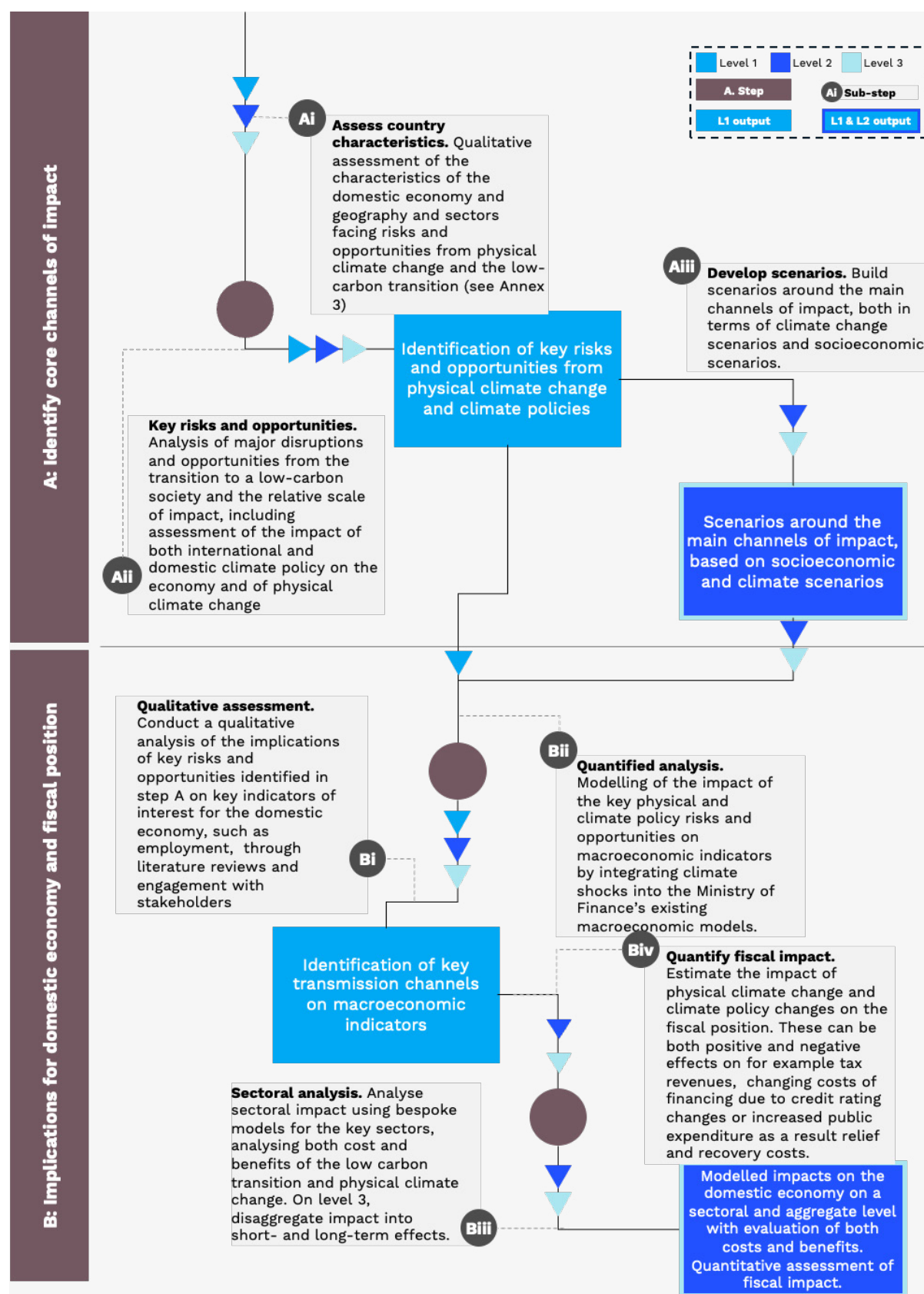
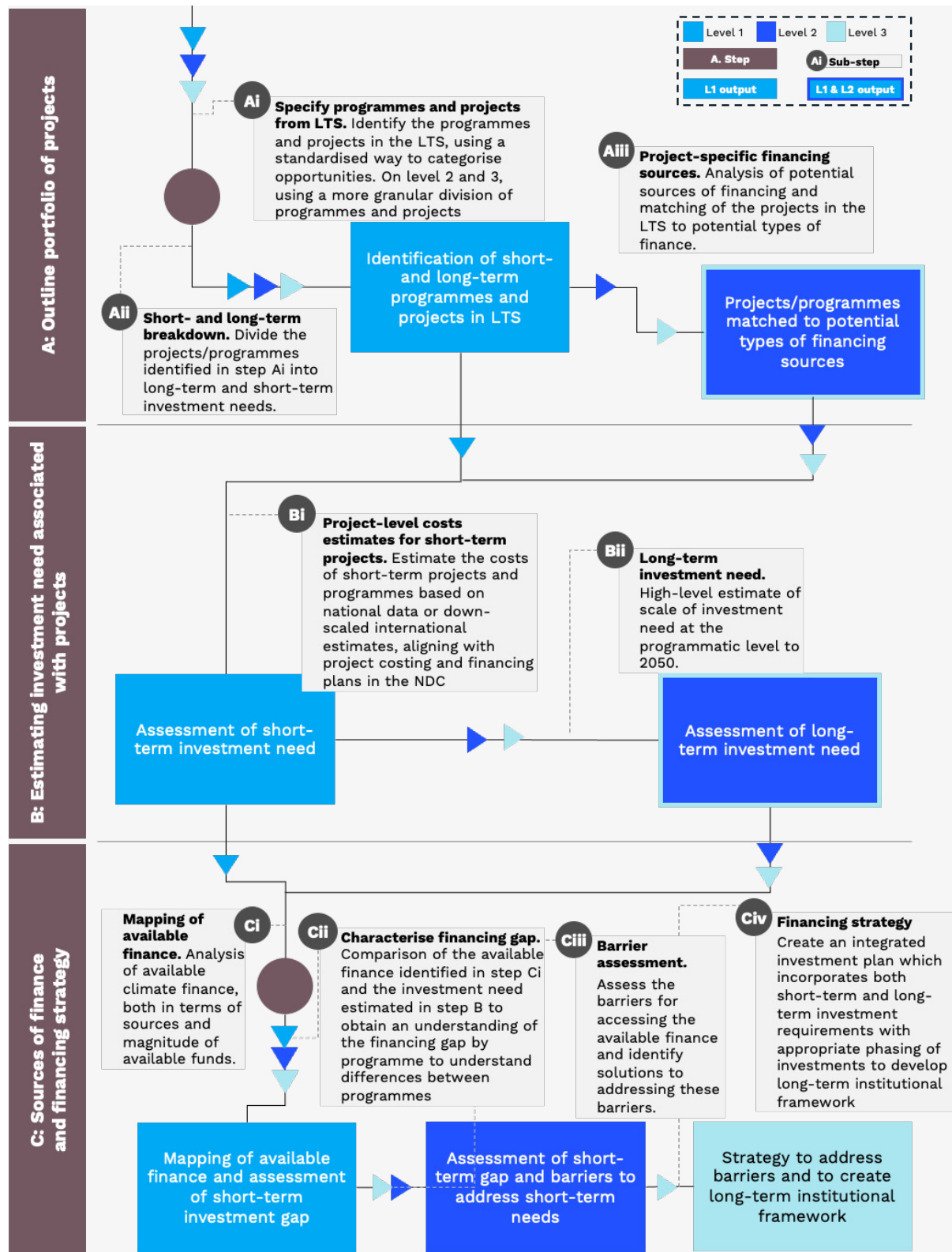


Figure 5: Priority Area 1: analysing the macroeconomic impacts of the low carbon transition and physical climate change



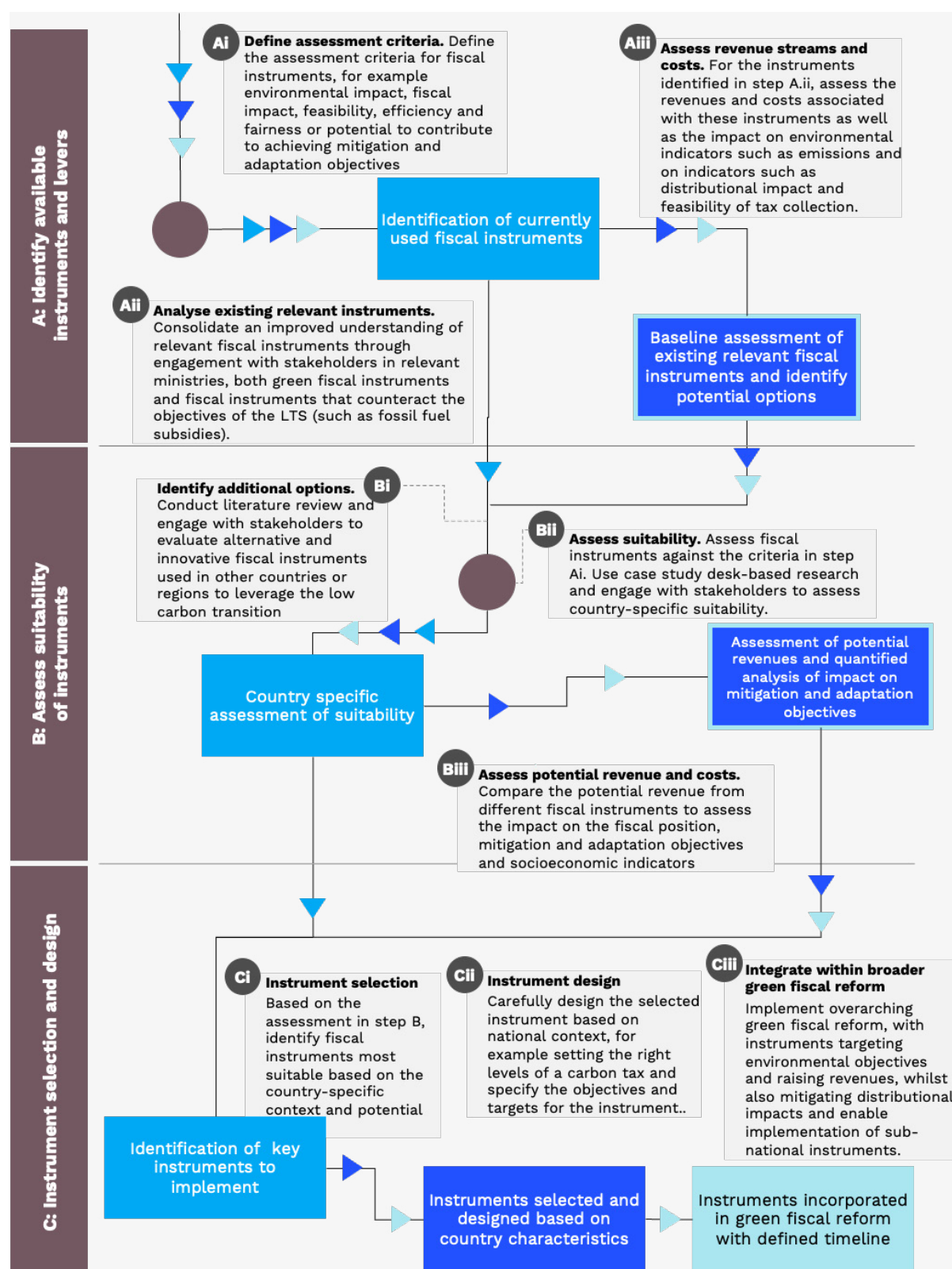
Note: Where outputs cover multiple levels, this is indicated by using a different colour for the outline.

Figure 6: Priority Area 2: Assess investment need for delivering LTS



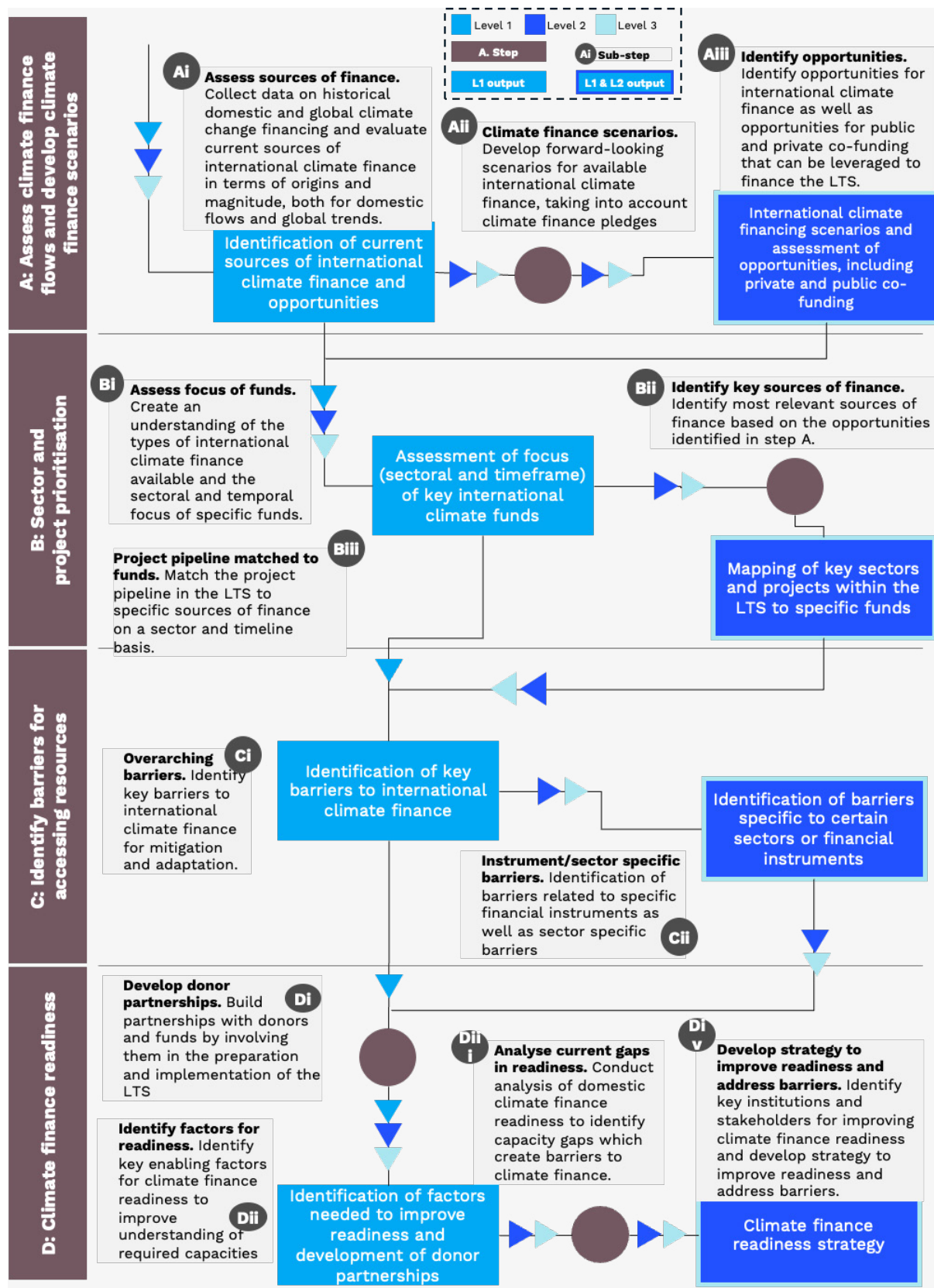
Note: Where outputs cover multiple levels, this is indicated by using a different colour for the outline.

Figure 7: Priority Area 3: Identify and prioritise fiscal instruments to incentivize the transition



Note: Where outputs cover multiple levels, this is indicated by using a different colour for the outline.

Figure 8: Priority Area 4: Improving readiness for accessing climate finance



Note: Where outputs cover multiple levels, this is indicated by using a different colour for the outline.

NEXT STEPS

Delivering on this guidance requires mainstreaming of macroeconomic and fiscal issues in long-term policymaking, with increased participation from Finance Ministries. The LTS can shape long-term strategic policymaking only where it has commitment from institutions with the decision making authority. In the case of macroeconomic and fiscal issues, this is typically Finance Ministries, who can take ownership of macroeconomic and financial aspects of the LTS, collaborating with Environment and sectoral ministries to deploy capital and fiscal incentives required to deliver the LTS.

Further focus is required on supporting building capacity to deliver LTS actions. Stakeholders report that capacity and information gaps are important barriers to developing more advanced LTS (at Level 2 or 3), particularly in linking climate variables to macroeconomic outcomes and in attracting climate finance. Further work can assess these gaps in greater detail and propose technical or human resources investments to address them. In particular, modelling frameworks on the fiscal impact of climate hazards and green job creation can help policymakers understand critical opportunity areas in more depth, as can enhanced use of data on climate finance.

Governance processes should ensure accountability and provide feedback for the next iteration of the LTS. One example of this is a Monitoring, Reporting and Verification (MRV) framework which can be incorporated into the national statistics office to maintain a central repository of data and to leverage the data and frameworks that have been previously developed. Key considerations include development of a transparent data management system, the provision of training for verifiers, and a methodology to interpret the data and assess the outcomes against the targets set out in the LTS. The IPCC guidance can be used as a starting point for the development of an MRV or similar system.²⁷



ANNEX

Resources

Priority area 1: Analyse core channels of impact	
Step a: Identify core channels of impact	
a.i	
a.ii	<ul style="list-style-type: none"> • Basel Committee on Banking Supervision - Climate related risk drivers and their transmission channels
a.iii	<ul style="list-style-type: none"> • NGFS Scenarios Portal • Shared Socioeconomic Pathways Database
Step b: Implications for the domestic economy and fiscal position	
b.i	<ul style="list-style-type: none"> • Basel Committee on Banking Supervision - Climate related risk drivers and their transmission channels
b.ii	<ul style="list-style-type: none"> • G-CUBED - multi-country, multi-sector, general equilibrium model • MIT - EPPA model - multi-sector, multi-region, computable general equilibrium (CGE) model of the world economy • World Bank (2021) Climate Modeling for Macroeconomic Policy: A Case Study for Pakistan
b.iii	<ul style="list-style-type: none"> • Stockholm Environment Institute- LEAP model
b.iv	
Priority area 2: Assess the investment need for the LTS	
Step a: Outline portfolio of projects	
a.i	
a.ii	<ul style="list-style-type: none"> • UNDP (2017) Hard Choices Integrated Approaches
a.iii	
Step b: Estimate investment need associated with projects	
b.i	<ul style="list-style-type: none"> • UNFCCC - Assessing the costs and benefits of adaptation options • UNEP Greenhouse Gas Abatement Cost Model
b.ii	<ul style="list-style-type: none"> • UNDP (2017) Hard Choices Integrated Approaches • UNDP methodology for assessing Investment and Financial Flows
Step c: Sources of finance and financing strategy	
c.i	<ul style="list-style-type: none"> • Climate Funds Update (2021) The Global Climate Finance Architecture • Climate Policy Initiative - Global Landscape of Climate Finance 2021
c.ii	
c.iii	
c.iv	<ul style="list-style-type: none"> • UNFCCC Needs-based Finance (NBF) Project
Priority area 3: Identify and prioritise green fiscal instruments	
Step a: Identify available instruments and levers	
a.i	<ul style="list-style-type: none"> • GGKP (2015) A Conceptual Framework for Measuring the Effectiveness of Green Fiscal Reform
a.ii	<ul style="list-style-type: none"> • IMF (2012) Fiscal instruments for climate change • World Bank (2021) Fiscal Policies for a Low-Carbon Economy • IMF Fiscal Monitor October 2021 • IMF (2019) Fiscal Policies for Paris Climate Strategies—from Principle to Practice
a.iii	<ul style="list-style-type: none"> • IMF (2019) Fiscal Policies for Paris Climate Strategies—from Principle to Practice

Step b: Assess suitability of instruments	
b.i	<ul style="list-style-type: none"> • IMF (2012) Fiscal instruments for climate change • IMF (2019) Fiscal Policies for Paris Climate Strategies—from Principle to Practice
b.ii	<ul style="list-style-type: none"> • IADB (2012) The Role of Green Fiscal Mechanisms in Developing Countries: Lessons Learned • IMF (2019) Fiscal Policies for Paris Climate Strategies—from Principle to Practice
b.iii	<ul style="list-style-type: none"> • IMF Fiscal Monitor October 2021
Step c: Instrument selection and design	
c.i	<ul style="list-style-type: none"> • GGKP (2015) A Conceptual Framework for Measuring the Effectiveness of Green Fiscal Reform
c.ii	<ul style="list-style-type: none"> • IMF (2019) Fiscal Policies for Paris Climate Strategies—from Principle to Practice • IADB (2012) The Role of Green Fiscal Mechanisms in Developing Countries: Lessons Learned
c.iii	<ul style="list-style-type: none"> • OECD (2017) Environmental Fiscal Reform • GGKP (2015) Overcoming Obstacles to Green Fiscal Reform
Priority area 4: Enhance readiness for international climate finance	
Step a: Assess climate finance flows and develop climate finance scenarios	
a.i	<ul style="list-style-type: none"> • UNDP (2017) Hard Choices Integrated Approaches • UNFCCC - Biennial Assessment and Overview of Climate Finance Flows
a.ii	<ul style="list-style-type: none"> • World Bank (2021): Enabling Private Investment in Climate Adaptation and Resilience • How to factor uncertainty? (Climate Adapt) • OECD (2021) Forward-looking Scenarios of Climate Finance Provided and Mobilised by Developed Countries in 2021-2025: Technical note
a.iii	<ul style="list-style-type: none"> • Climate Funds Update
Step b: Sector and project prioritization	
b.i	<ul style="list-style-type: none"> • ACT Alliance (2018) A Resource Guide to Climate Finance • NDC Partnership - Climate Finance Explorer • Climate Funds Update
b.ii	<ul style="list-style-type: none"> • ACT Alliance (2018) A Resource Guide to Climate Finance • NDC Partnership - Climate Finance Explorer • Climate Funds Update
b.iii	
Step c: Identify barriers for accessing resources	
c.i	<ul style="list-style-type: none"> • CDKN - Addressing the barriers to climate investment • UNFCCC Needs-based Finance (NBF) Project
c.ii	<ul style="list-style-type: none"> • CDKN - Addressing the barriers to climate investment • UNFCCC Needs-based Finance (NBF) Project
Step d: Climate finance readiness	
d.i	
d.ii	<ul style="list-style-type: none"> • UNDP (2012) Readiness for Climate Finance • UNEP (2018) Climate Finance Law - Legal Readiness for Climate Finance
d.ii	
d.iv	<ul style="list-style-type: none"> • UNDP (2012) Readiness for Climate Finance • GCF (2021) Country readiness

Case studies

BOX 3 | CASE STUDY 1 – THE UK’S 6TH CARBON BUDGET ESTIMATES THE COST OF MEETING THE GHG MITIGATION TARGETS

The UK’s 6th Carbon Budget estimates the cost of the budget by estimating the cost of abating GHG for each sector. This costing exercise estimates the investment need for creating a low carbon economy, and approximates the additional cost of abating GHG for each sector relative to a business as usual scenario.²⁸ The cost is calculated thorough a bottom-up approach, which estimates the cost of each individual measure and technology.

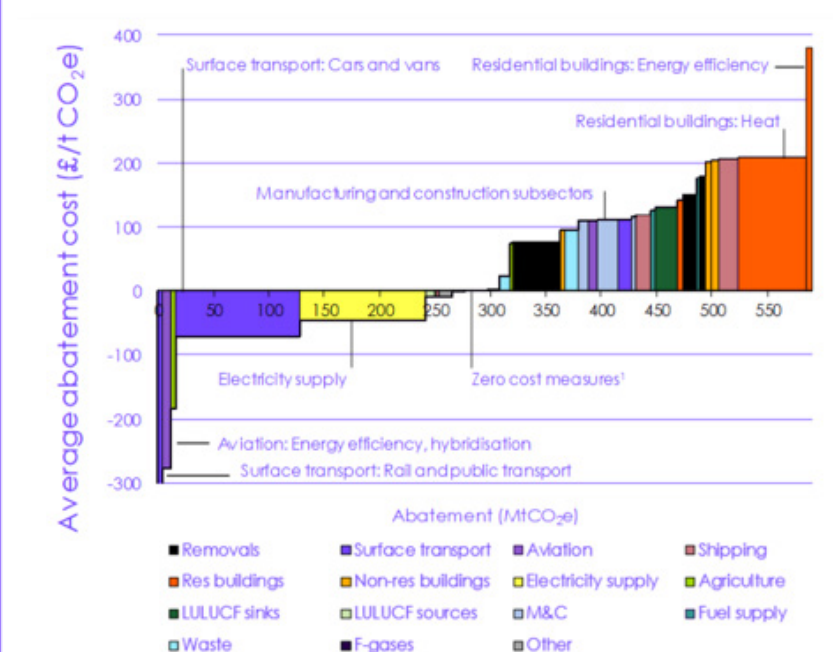
The costing methodology consists of three steps:

- Step 1: The first step estimates the resource cost of an investment by taking into account both the capital investment costs as well as the operating costs and the financing costs. These costs capture both the direct investment costs as well as the costs of operating the technology over its lifetime. To calculate the average cost per year, the direct costs and operating costs are annualised over the expected lifetime of the technology.
- Step 2: In the second step, the methodology calculates the net present value of the cost per tonne of GHG. This is done by calculating the stream of costs over the lifetime of the technology, discounting the future cost to account for the time value of money, and subsequently dividing the net present cost by the expected level of GHG abatement resulting from the technology over its lifetime. The net present value is one of the factors taken into account when creating a cost-effective emission reduction path and to decide which technologies to deploy and at what point in time.

$$\text{£/tCO}_2\text{e} = \frac{\text{Net present cost of measure}}{\text{Total discounted lifetime abatement}}$$

- Step 3: In the final step, the annualized resource cost is calculated by multiplying the cost per tonne CO₂e by the annual GHG abatement in a specific scenario. In addition to reporting the abatement cost by sector, the costs by sector are also aggregated to the estimate the overall cost and reported as a percentage of GDP.

Figure 1.6 Average cost of abatement across major subsectors in 2050



Source: CCC analysis.

Notes: Full dataset can be downloaded in the Sixth Carbon Budget dataset at www.theccc.org.uk. M&C = manufacturing and construction. LULUCF = Land use, land-use change and forestry. 1 - Aviation: Demand management and agriculture: behaviour change.

Source: Adapted from CCC (2020) *The Sixth Carbon Budget Methodology Report*. <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-Methodology-Report.pdf>

BOX 4 | CASE STUDY 2 – NEPAL ESTIMATES THE SHORT AND LONG-TERM INVESTMENT NEED AND COST SAVINGS ASSOCIATED WITH THE LOW CARBON TRANSITION

- Nepal's Long-Term Strategy for Net Zero Emissions estimates the investment requirements to deliver the different scenarios in the strategy. Rather than just estimating the total cost of implementing the strategy to 2050, the LTS disaggregates the investment into yearly costs in each decade to 2050.
- The LTS sets out three different scenarios – the reference scenario, the 'with existing measures' (WEM) and the ambitious 'with additional measures' (WAM) scenario.
- The yearly cost of the WAM scenario is in absolute terms estimated to reach USD 15.2 bn in 2050, up from USD 5.4 bn per year in 2030. Due to Nepal's rapid economic growth, the cost as a share of GDP is estimated to decrease from 22% of GDP in 2030 to 16% in 2050.

Investment requirements in 2030, 2040 and 2050 under different scenarios

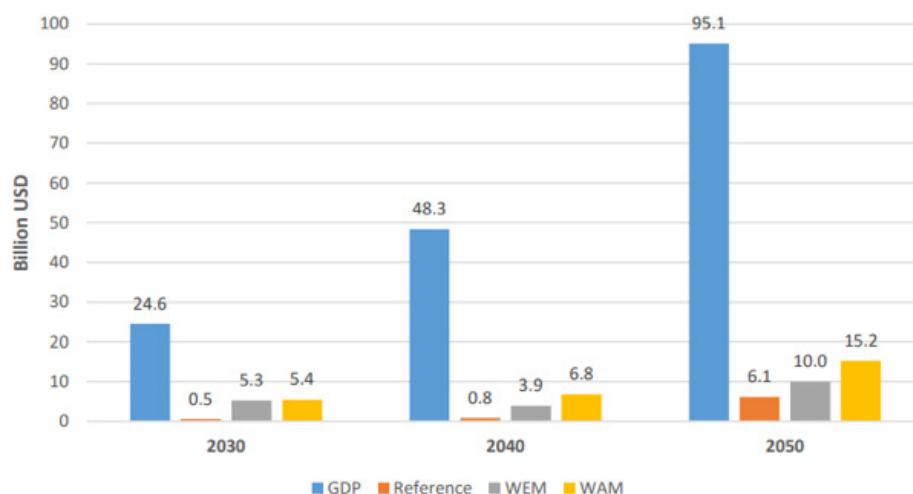


Figure 11: Investment requirements for mitigation measures of Reference, WEM, and WAM scenarios compared to GDP

- In addition to estimating the investment need for the low carbon transition under the different scenarios, the LTS also accounts for cost savings associated with lower imports of fossil fuels
- The analysis shows that the more ambitious scenario, the WAM scenario, the cost savings from a decrease in fossil fuel imports is estimated to increase rapidly over and time and to amount to almost 20% of GDP in 2050
- The less ambitious WEM scenario is estimated to lead to significantly lower cost savings, equivalent to less than 12% in 2050

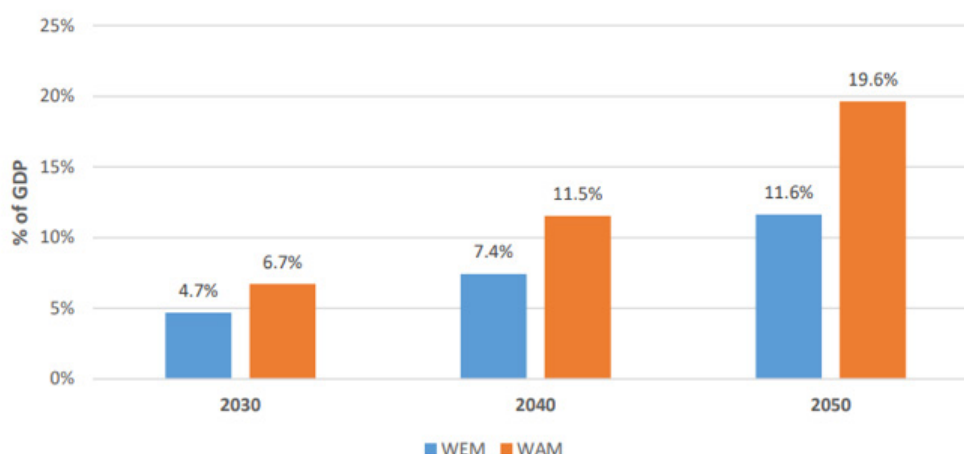


Figure 13: Cost savings from the decrease in fossil fuel imports

Based on Government of Nepal (2021) Nepal's Long-term Strategy for Net-zero Emissions. <https://unfccc.int/sites/default/files/resource/NepalLTLEDS.pdf>

BOX 5 | CASE STUDY 3 – NORTH MACEDONIA’S LONG-TERM STRATEGY ON CLIMATE ACTION AND ACTION PLAN ANALYSES THE POTENTIAL OF FISCAL INSTRUMENTS AND SETS OUT FINANCING PLANS

North Macedonia’s LTS provides a comprehensive analysis of both the role of fiscal instruments to enable the transition, as well as of the magnitude of investment needed to implement the LTS and the sources of the finance for the proposed interventions in the LTS.

Analysis of green fiscal instruments

- North Macedonia’s LTS states that there is currently a lack of mechanisms and instruments in place that can leverage and finance the low carbon transition.
- The LTS identifies a tax on as a way to implement a “polluter pays” principle to encourage private actors to internalise the cost of climate change. A carbon tax internalises the cost of emissions by increasing the price paid by the final consumer. Consequently carbon intensive goods become more expensive, which can incentivise a switch to zero-carbon energy sources and production methods.
- The LTS sets out two scenarios – the ‘with existing measures’ (WEM) scenario and the ambitious ‘with additional measures’ (WAM) scenario. A key aspect of the WAM scenario is decommissioning of coal power plants, which is driven by a higher carbon tax
- The long-term strategy outlines an action plan for the implementation of a carbon tax and sets quantified targets to measure the progress. By 2030, the target is for more than 3000 kt CO₂ emissions to be paid under the carbon tax

Assessment of the impact of a carbon tax

- The LTS evaluates the impact of a price on carbon on emissions as well as on fuel prices and their impact on household expenditure under the different scenarios
- A high carbon price will lead to decommissioning of coal power plants and increased use of renewable energy sources which will lead to a reduction in emissions from the electricity and heat producing sectors by up to 93% by 2050
- The price of electricity paid by consumers is expected to double as a result of the carbon tax, but this will be mitigated by increased use of renewable energy and a threefold increase in GDP per capita

Analysis of source of finance for key interventions

- The strategy provides details on the proposed interventions in the strategy, such as estimated costs, main impacts and key stakeholders
- The source of funding for the activity, such as state budget, international cooperation or specific international climate funds are clearly indicated

Example of details on financing need and source of finance in project plan

Finance:	Budget:	1708.2 M€
	Source of finance:	Private, donors through commercial EE loans, EE fund
Progress monitoring:	Objective achieved:	Yes/No
	Activities implemented:	Yes/No
Reference to assessments and underpinning technical reports:	Energy strategy up to 2040, NECP; 3rd BUR	
Assumptions/ General comments:	The existing residential buildings, while meet the standard for at least C class (90 kWh/m ²). The annual renovation rate considered is 2%	

Source: Government of North Macedonia (2021) Long-Term Strategy on Climate Action And Action Plan. https://unfccc.int/sites/default/files/resource/MKD_LTS_Nov2021.pdf

BOX 6 | CASE STUDY 4 – CAMBODIA USES THE LTS TO PROPOSE A PUBLIC FINANCING PLAN

Cambodia's Long-Term Strategy for Carbon Neutrality provides a comprehensive analysis of the scale of the public financing needs, the sources of domestic public finance and the gap for international climate finance.

- Cambodia estimates that the public financing need for the LTS will amount to almost USD 9 bn (about one third of total LTS financing needs) for the 2025-2050 period. The financing needs will grow steadily between 2025 and 2050 and increase from USD 135 million in 2025 to USD 652 million in 2050.
- The LTS proposes a public financing plan to cover the investment need over the next 30 years. The LTS suggests that committing 1% of new public borrowing to the LTS, combined with a shift in public spending on economic activities, will cover 40-50% of the financing needs for the LTS. In addition, reforms in the transport sector – including taxation policy and pricing policies for public transport – are expected to cover 90% of the investment need in the sector by 2050.
- The remaining investment, approximately USD 2.3 bn between 2025 and 2050 and equivalent to 26% of the total investment need during the period, is expected to be covered by international climate finance. Areas where international climate finance is likely to be needed includes for investment in public transportation, the forestry sector and improvements in the grid network.

Public financing needs and financing plan for Cambodia's LTS

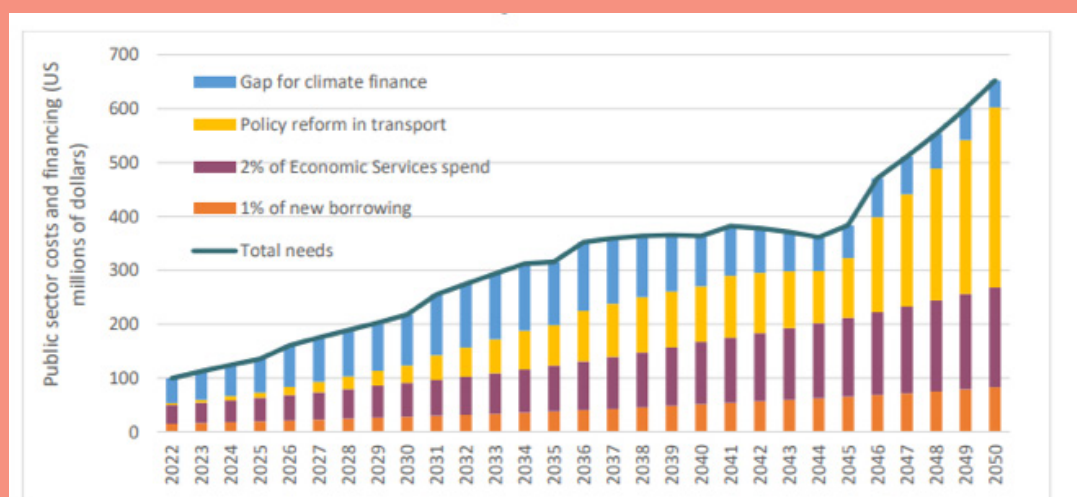


Figure 2: Public financing needs and financing plan

Source: Government of Cambodia (2021) Long-Term Strategy for Carbon Neutrality. https://unfccc.int/sites/default/files/resource/KHM_LTS_Dec2021.pdf

BOX 7 | CASE STUDY 5 – SOUTH AFRICA ANALYSES CURRENT FLOWS OF DOMESTIC AND INTERNATIONAL CLIMATE FINANCE

- South Africa's Low-Emission Development Strategy 2050 analyses current flows of climate finance, looking at both global trends and flows of international climate finance to South Africa.
- In addition to the analysis of international climate finance, the LTS also provides a detailed breakdown of climate finance from domestic sources, divided by type of finance and by sector.
- Although the analysis concludes that distribution of international and domestic climate finance in South Africa are in line with global trends, the LTS acknowledges that the amount of international climate finance will need to increase in order to meet South Africa's mitigation and adaptation needs.
- To address this issue, the strategy sets the ambition to develop a financing plan which will analyse barriers to international climate finance in South Africa and develop a pipeline of financeable projects.

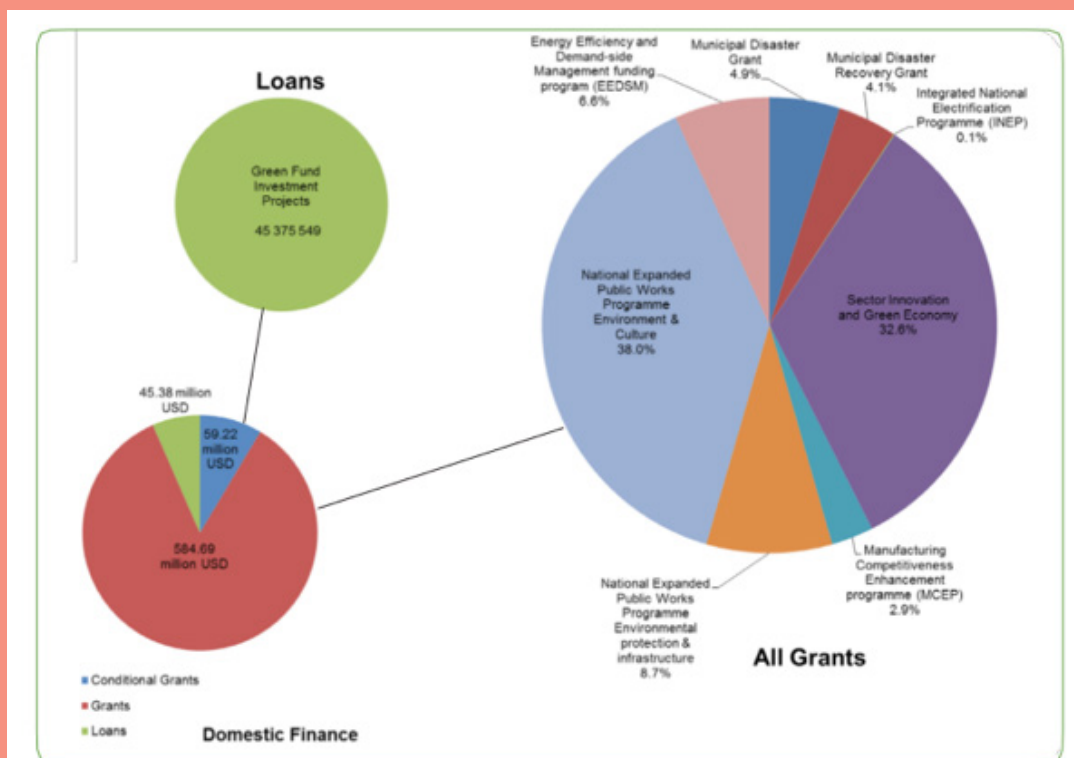


Figure 8: Domestic climate finance (2015 - 2017)

Source: DEA (2019c)

Source: Government of South Africa (2020) South Africa's Low-Emission Development Strategy. <https://unfccc.int/sites/default/files/resource/South%20Africa%27s%20Low%20Emission%20Development%20Strategy.pdf>

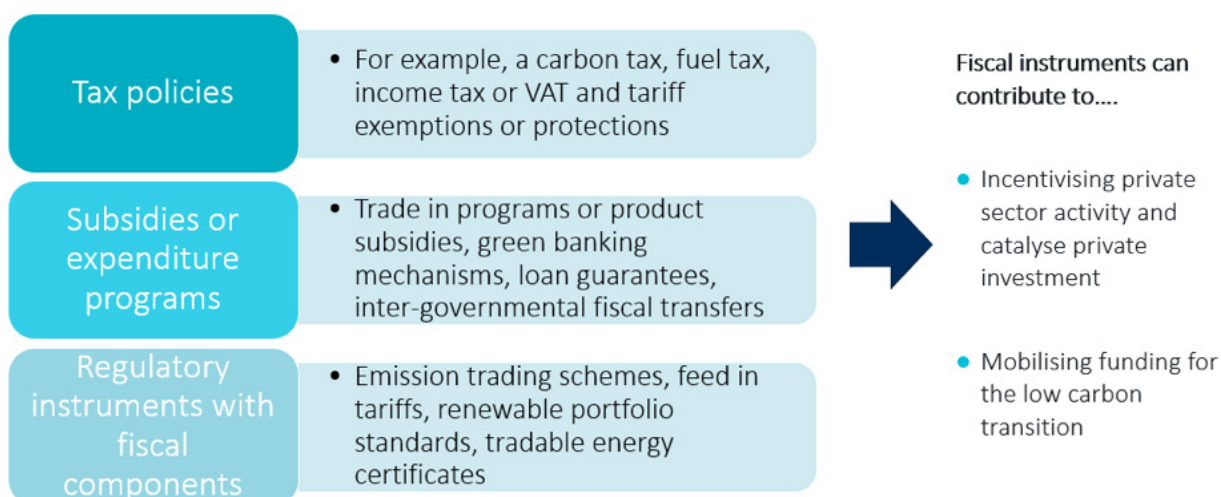
BOX 8 | CASE STUDY 6 – MOROCCO AIMS TO DEVELOP A GREEN FISCAL REFORM FOR THE INDUSTRIAL SECTOR TO LEVERAGE AND FINANCE THE LOW CARBON TRANSITION

Morocco's LTS sets an objective to design a green tax system

- The aim of the green tax system is to enable a low-carbon transition of the industrial sector by incentivise the increased use of clean technologies and R&D for low-carbon production methods
- The fiscal reform will include a range of instruments, such as taxes, a carbon market and targeted subsidies, and aims to both redirect investment and change consumer behaviour, while taking equity and redistribution issues into account

Source: Government of Morocco (2021) Stratégie Bas Carbone à Long Terme Maroc 2050. Available from: https://unfccc.int/sites/default/files/resource/MAR_LTS_Dec2021.pdf

Fiscal instruments taxonomy



Source: IADB (2012) *The Role of Green Fiscal Mechanisms in Developing Countries: Lessons Learned*

Acronyms

Acronym	Definition
AFOLU	Agriculture, Forestry and Land Use
BAU	Business As Usual
CDKN	Climate and Development Knowledge Network
CDM	Clean Development Mechanism
CGE	Computable general equilibrium model
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DNA	Designated National Authority
DRF	Disaster Risk Finance
DRM	Disaster Risk Management
EIB	European Investment Bank
EV	Electric Vehicle
FCDO	Foreign, Commonwealth and Development Office
GCF	Green Climate Fund
GCM	General Circulation Models or Global Climate Models
GDP	Gross Domestic Product
GEM	General Equilibrium Model
GEMMES	General Monetary and Multisectoral Macrodynamics for the Ecological Shift
GHG	Greenhouse gas
IADB	Inter-American Development Bank

IDR	Indonesian Rupiah
IO	Input-Output model
IPCC	Intergovernmental Panel on Climate Change
KNMI	Koninklijk Nederlands Meteorologisch Instituut
LECRDS	Low Emission and Climate Resilient Development Strategy
LPJmL	Lund-Potsdam-Jena managed Land
LTS	Long Term Strategy/Long Term Strategies
MIROC	Model for Interdisciplinary Research on Climate
MRV	Monitoring, Reporting and Verification
NAP	National Adaptation Plan
NBS	Nature Based Solutions
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDE	National Designated Entity
NIE	National Implementing Entity
NOAA	National Oceanic and Atmospheric Administration
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
RCM	Regional Climate Models
RCP	Representative Concentration Pathway
SDG	Sustainable Development Goals
SEI	Stockholm Environment Institute
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
USD	United States Dollar
WMO	World Meteorological Organization
WRI	World Resources Institute

ENDNOTES

- 1 50 LTS have been published as of 8th March 2022. UNFCCC (2022). Communication of long-term strategies. Available at: <https://unfccc.int/process/the-paris-agreement/long-term-strategies> Lower middle income: Benin, Cambodia, Indonesia, Morocco, Nepal, Nigeria, Ukraine. Upper middle income: China, Colombia, Costa Rica, Fiji, Guatemala, Marshall Islands, Mexico, North Macedonia, South Africa, Thailand Tonga
- 2 Countries are classified as low-income economies; lower middle-income economies; upper middle-income economies or high-income economies as per World Bank (2022), World Bank Country and Lending Groups. Available at: <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>
- 3 University of Cambridge (2020) New approaches to help businesses tackle climate change. <https://www.cam.ac.uk/research/news/new-approaches-to-help-businesses-tackle-climate-change>
- 4 The Brookings Institution (2019) Ten facts about the economics of climate change and climate policy. <https://www.brookings.edu/research/ten-facts-about-the-economics-of-climate-change-and-climate-policy/>
- 5 WRI (n.d.) Low-Carbon Futures in Least Developed Countries
- 6 The Royal Society (n.d.) Climate change and land - Opportunities and challenges for the UK
- 7 The Just Transition describes an equitable and inclusive low-carbon and climate resilient transition, where opportunities are accessible to all, and disproportional impacts are mitigated
- 8 NGFS Net Zero scenario. Figure includes spending on physical assets in power, mobility, fossil fuels, biofuels, hydrogen, heat, CCS (not including storage), buildings, industry (steel and cement) agriculture and forestry. McKinsey (2022) The net-zero transition – what it would cost, what it could bring
- 9 See UNFCCC (n.d.) Communication of long-term strategies. <https://unfccc.int/process/the-paris-agreement/long-term-strategies>
- 10 ILO (2018) World Employment and Social Outlook 2018 - Greening with jobs: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf
- 11 Stranded assets are defined as assets or investments that lose their value due to changes in the market place. (World Bank (2014) Carbon Bubbles and Stranded Assets. <https://blogs.worldbank.org/climatechange/carbon-bubbles-stranded-assets>)
- 12 ILO (2018) World Employment and Social Outlook 2018 - Greening with jobs: https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf
- 13 North Macedonian Ministry of Environment and Physical Planning (2021) Long-Term Strategy on Climate Action and Action Plan https://unfccc.int/sites/default/files/resource/MKD_LTS_Nov2021.pdf
- 14 UNEP-FI (n.d.) Working with financial institutions to accelerate the transition to low-carbon economies. <https://www.unepfi.org/climate-change/climate-change/>
- 15 Kingdom of Cambodia (2021) Long-Term Strategy for Carbon Neutrality. https://unfccc.int/sites/default/files/resource/KHM_LTS_Dec2021.pdf
- 16 University of Cambridge (2020) New approaches to help businesses tackle climate change. <https://www.cam.ac.uk/research/news/new-approaches-to-help-businesses-tackle-climate-change>
- 17 World Bank (2021) Enabling Private Investment in Climate Adaptation & Resilience. <https://openknowledge.worldbank.org/bitstream/handle/10986/35203/Enabling-Private-Investment-in-Climate-Adaptation-and-Resilience-Current-Status-Barriers-to-Investment-and-Blueprint-for-Action.pdf?sequence=5&isAllowed=y>
- 18 HM Treasury (2018) Managing fiscal risks. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/725908/managing_fiscal_risks_final_print.pdf
- 19 See for a taxonomy of fiscal instruments
- 20 Royaume du Maroc (2021) Stratégie Bas Carbone à Long Terme. https://unfccc.int/sites/default/files/resource/MAR_LTS_Dec2021.pdf
- 21 Sachs et al (2019) Why is green finance important?, World Bank (2021) Enabling Private Investment in Climate Adaptation and Resilience : Current Status, Barriers to Investment and Blueprint for Action
- 22 ILO (2018) Greening with jobs. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_628654.pdf
- 23 Imperial College London (2018) Climate Change and the Cost of Capital in Developing Countries. <https://imperialcollegelondon.app.box.com/s/e8x6t16y9bajb85inazbk5mdrqtvxvfd>
- 24 UNEP-FI (n.d.) Working with financial institutions to accelerate the transition to low-carbon economies. <https://www.unepfi.org/climate-change/climate-change/>
- 25 The figure for estimated mitigation and adaptation investment is not only additional investment –

mitigating and adapting to climate change will require budget realignment and shifts in investment as well as new investment. See the case study of Cambodia's LTS in Annex 2: Case studies for an example.

26 Bilateral and multilateral public finance. [OECD \(2021\) Climate Finance Provided and Mobilised by Developed Countries](#)

27 [IPCC \(2014\)](#)

28 The counterfactual scenario does not include the increased costs of climate due to inaction and the benefits from emission reduction are also excluded, which likely leads to a conservative cost estimate.

