ACT

ACTION ON CLIMATE TODAY

LEARNING PAPER

Mainstreaming, accessing and institutionalising finance for climate change adaptation

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Abbreviations and acronyms

ACT	Action on Climate Today
ADB	Asian Development Bank
CBA	Cost–Benefit Analysis
CC	Climate Change
CC%	Climate Change Relevance
CDD	Consecutive Dry Days
CFU	Climate Finance Unit
CPEIR	Climate Public Expenditure and Institutional Review
CPI	Climate Policy Initiative
DFID	Department for International Development
FFRG	Financing Framework for Resilient Growth
FRP	Flood Return Period
GCF	Green Climate Fund
GCM	General Circulation Model
GDP	Gross Domestic Product
GEF	Global Environment Facility
IISD	International Institute for Sustainable Development
IPCC	Intergovernmental Panel on Climate Change
L&D	Losses & Damages
MCA	Multi-Criteria Analysis
MTEF	Medium-Term Expenditure Framework
NAF	National Adaptation Fund
NDC	Nationally Determined Contribution
ODA	Official Development Assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Co-operation and Development
SAP	State Action Plan
SAPCC	State Action Plan on Climate Change
SAPFIN	State Action Plan Financing Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

Executive summary

The cost of adapting to climate change in developing countries could rise to between US$280 and US$500 billion per year by 2050 (UNEP, 2016). Moreover, adaptation costs are likely to increase, even if the world succeeds in limiting the global temperature rise to well below 2°C above pre-industrial levels by 2100 (ibid.). Past assessments seem to have substantially underestimated adaptation costs in developing countries, owing to the omission of some sectors, only partial coverage of others and unforeseen costs from maladaptation (Parry et al., 2009). What further leads to lower cost estimates is the fact that much of the literature on adaptation costs focuses on planned public adaptation, overlooking autonomous and private adaptation, which—if included—could raise cost estimates significantly (UNEP, 2016).

While the Paris Declaration's Nationally Determined Contributions (NDCs) represent laudable progress on adaptation, the costs of their actions substantially exceed current finance levels (UNEP, 2016). The shortage of adaptation finance has been aggravated by the fact that climate funds have been created but not sufficiently capitalised. Many climate funds are slow to disburse in general, and even slower in disbursing for adaptation (as opposed to mitigation), hindering much-needed adaptation actions. While climate funds are popular with governments and fulfil an important role in providing additional flexible finance for climate change, the sheer volumes required for adaptation far exceed the current climate fund amounts, making it evident that in most countries the bulk of adaptation action will have to be funded through expenditure from core development budgets and fiscal means.

To this end, governments can benefit from a framework that allows them to mainstream climate change into their core development budgets. Financing frameworks for resilient growth (FFRGs) offer a way to estimate the economic cost of climate change damage, to quantify the adaptation benefits of current expenditure, to assess the adequacy of such expenditure relative to the projected economic cost of climate change and to identify areas where additional financing is needed to reduce the economic impact of climate change.

Action on Climate Today (ACT), a UK Aid-funded programme focused on climate-proofing growth in five South Asian countries, responds to these challenges through its focus on mainstreaming climate change across budgets and helping government access new finance, while strengthening institutions to take action on both. ACT has utilised its financing frameworks as a mechanism for 1) raising government awareness of adaptation needs; 2) helping governments identify key priority sectors or actions where investment is needed; 3) mobilising finance from development budgets and assessing the adequacy of effort; and 4) reporting on adaptation-relevant expenditure, thereby adding to accountability and transparency.

This paper reviews the current state of practice and debates related to the mainstreaming of adaptation finance and synthesises experience and key lessons from the ACT programme that may be of relevance to practitioners and governments working to mobilise financing for climate-resilient growth and development.

In particular, this paper reviews:

- Methods for estimating the climate change relevance of budgets or expenditure;
- Approaches to budget tracking and expenditure review;
- Estimations of economic loss and damage;
- Calculation of the adaptation financing gap;
- The development of financing scenarios;
- Approaches to closing the adaptation gap;
- Key entry points for mainstreaming climate adaptation finance.

The paper also discusses necessary institutional mechanisms and the capacity development required for effective climate finance mainstreaming and provides key lessons for practitioners and government agencies looking to undertake similar work.

1. Background and introduction

The cost of adapting to climate change in developing countries could rise to between US$280 and US$500 billion per year by 2050 (UNEP, 2016). These figures represent a substantial increase from previous estimates based on a 2010 World Bank study, which placed the cost at US$70–100 billion annually for the period 2010–2050 (IISD, 2016). Past assessments have substantially underestimated costs (Parry et al., 2009). While the Paris Declaration's Nationally Determined Contributions (NDCs) represent laudable progress on adaptation, the cost of their actions substantially exceeds current finance levels (UNEP, 2016).

Many countries in South Asia are particularly vulnerable to climate change and are currently under duress to mobilise the required funding for adaptation. Without adaptation, their economies face a daunting future. A 2014 Asian Development Bank (ADB) study finds that the impacts of climate change will cause the region's gross domestic product (GDP) growth rate to fall steadily from an estimated 5% in 2015 to 1.5% in 2050 (Ahmed and Suphachalasa, 2014). Other studies suggest an even higher economic impact of climate change, given its potential to affect the engines of economic growth and create compounded or year-on-year impacts.

The adaptation finance gap has been widened because developed country parties are falling short of their annual commitments by 2020 for climate action in developing countries. In 2009, developed country parties to the United Nations Framework Convention on Climate Change (UNFCCC) had committed to jointly mobilising US$100 billion a year from various sources by 2020. In 2015, the Organisation for Economic Co-operation and Development (OECD) reported that climate finance volumes flowing from developed to developing countries that might qualify to meet the US$100 billion goal had amounted to an annual average of US$57 billion in the period between 2013 and 2014. Of this, only about US$9.3 billion was directed to adaptation, with a further US$3.7 billion directed to dual adaptation/mitigation projects (ibid.). UNFCCC left the form of this finance—public or private, bilateral or multilateral—open. But the OECD study makes it clear that private sector sources in developed countries are not expected to fill the adaptation gap either. Of the small amount of private sector finance that can be tracked today, less than 10% is directed to climate change adaptation.

While climate funds have an important role to play in demonstrating how climate financing can be mobilised, it is evident that their contribution to avoiding losses & damages (L&D) from climate change will be marginal. Such funds have been created but not sufficiently capitalised or mobilised. Many of them are slow to disburse in general and even slower to disburse for adaptation (as opposed to mitigation), hindering much-needed adaptation actions. Meanwhile, although climate funds are popular with governments and fulfil an important role in providing additional flexible finance for climate change, the sheer volumes required for adaptation far exceed the current amounts pledged to them, meaning that in most countries the bulk of adaptation action will have to be funded through expenditure from core development budgets and fiscal resources.

There is wide discrepancy between the government funding pledged for adaptation action in developing countries and that required to offset and prevent the above-mentioned L&D in developing countries. As Table 1 shows, even if funds that are currently pledged are actually deposited and then approved in the form of programmes, funding for adaptation is currently estimated to amount to just above US$17 billion in an optimistic scenario—one that consists in counting both adaptation and multiple foci funds towards adaptation. These pledges and commitments lie in stark contrast with the above-stated need for hundreds of billions of US dollars. As a point for comparison, it is projected that Afghanistan alone will require US$10.8 billion between 2020 and 2030 (Islamic Republic of Afghanistan, 2015).

It is evident that, to fill the adaptation finance gap and fund climate change adaptation to prevent as much future L&D as possible, governments will have to go beyond donor funding and mobilise their own fiscal resources. They also need to shift spending to enable the greatest adaptation benefits: To be able to finance as much adaptation as possible, decision-makers must have the potential to mainstream climate change across budgets and planning. Moreover, there will be a need to build capacity at several levels of government to ensure the implications of climate change for planning are understood across sectors.

In response to these challenges, a UK Aid initiative, the Action on Climate Today (ACT) programme, aims to mainstream climate change adaptation

Table 1: Climate funds, as of July 2017 (US$ millions)

Fund		Pledge
Adaptation for Smallholder Agriculture Programme	Adaptation	308
Adaptation Fund		633
Least Developed Countries Fund		1,250
Pilot Programme for Climate Resilience		1,153
Special Climate Change Fund		368
Total		*3,712*
GEF Trust Fund (GEF 4)	Multiple foci	1,083
GEF Trust Fund (GEF 6)		1,117
Global Climate Change Alliance		906
Green Climate Fund		10,273
Indonesia Climate Change Trust Fund		26
Total		*13,405*
Grand total		***17,117***

Source: http://www.climatefundsupdate.org/

Figure 1: Elements of a financing framework for resilient growth

and resilience in government plans, policies and budgets at the national and subnational level in South Asia. Following detailed consultation and planning during the programme's first year, climate finance emerged as one of the core themes. This came in response to recognition that scarcity of funding and weak climate finance capacity were obstructing adaptation action.

ACT supports governments by means of a framework that allows them to mainstream climate change across their core development budgets.

Financing frameworks for resilient growth (FFRGs) offer a way to estimate the economic cost of climate change damages, to quantify the adaptation benefits of current expenditure, to assess the adequacy of such expenditure relative to the projected economic costs of climate change and to identify areas where additional financing is needed to reduce the economic impact of climate change.

The following pages describe the elements of the financing framework in detail, starting with the tracking of public expenditure on climate change.

2. Tracking public expenditure on climate change

2.1. The role of expenditure tracking in managing climate finance

Resource tracking is the process of routinely collecting, analysing and monitoring resources flowing into and within a system. The focus of this section is on tracking public expenditure on climate change, because ACT's primary partners tend to be government institutions and because evidence shows that the bulk of adaptation spending is expected to come from government (national and subnational) budgets. From a climate change perspective, tracking government spending on adaptation and mitigation is essential for a number of reasons:

- It enables policy-makers to prioritise, plan and allocate resources to better tackle climate change-associated economic L&D;
- It is an important means of promoting transparency and accountability, for example by tracking finance committed to UNFCCC NDCs;
- It provides a baseline analysis of the existing level of effort to combat economic L&D against which progress can be tracked over time.

As such, expenditure tracking is often an early step in introducing a financing framework.

The practice of climate change expenditure tracking has borrowed from several methodologies in the field of public finance management. Adjustments have been made to reflect the idiosyncrasies of climate spending, in particular the need to weight expenditures to reflect varying degrees of climate change relevance (CC%). Below, we explore various approaches to estimating CC% and tracking expenditures.

People walk through a flooded street during heavy rain showers in Mumbai on Eastern Express Highway near King Circle station.

2.2. Estimating climate change relevance

Discussions on countries' commitments to climate change adaptation are on-going. Industrialised countries' responsibility to commit funds *in addition* to official development assistance (ODA) has been a particularly contentious issue. One argument for increased financial commitments by developed countries to adaptation in developing countries is that they need to take responsibility as the main emitters of greenhouse gases, and not that they should act out of solidarity. As climate change is the result of environmentally unsustainable growth trajectories that economically benefit mostly industrialised countries, those countries that are least developed (and typically the most vulnerable to climate change) are also the least responsible. Responsibility for assisting the most vulnerable countries in coping with the impacts of climate change is thus *additional to* existing ODA commitments.

Moreover, it is paramount to distinguish the role of development institutions from that of formal climate change institutions (such as UNFCCC) and to consider how ODA could complement adaptation funding rather than replacing it (Ayers and Huq, 2008). In order to ensure development aid is not diverted to supplement adaptation funding, to which industrialised countries should commit, it is important to distinguish between the two and to assess development programmes for their climate change benefits and track these. Similarly, spending by governments based on their own fiscal resources should be assessed and tracked for climate change-relevant expenditure.

The first step in any attempt to track resources is to define and delineate the functional area of relevance. For tracking exercises in traditional sectors, such as education, this involves a straightforward decision by governments on which services should be included (e.g. primary education services). For climate change, tracking is complicated by the fact that measures that produce climate change adaptation and mitigation benefits are usually part and parcel of broader programmes that promote sustainable development. Few programmes specifically address climate change as their central objective. There is a need, then, to untangle spending that has potential adaptation and mitigation benefits, by understanding the CC% of different development programmes. To be clear, this does not mean climate

change will not be mainstreamed. By delineating the adaptation benefits of programmes, an attempt is being made to ultimately establish a figure that can be placed alongside L&D to gauge the adequacy of an effort.

Two approaches to assess CC% have emerged: an objectives-based approach and a benefits-based approach, both of which are being used in South Asia. Table 2 sets out the main characteristics of each.

The objectives-based approach has been used in climate public expenditure and institutional reviews (CPEIRs) by the Overseas Development Institute (ODI) and by the United Nations Development Programme (UNDP) in Bangladesh, Nepal, Pakistan, Philippines and Thailand. The OECD ODA database also uses a variation of the approach, in the form of climate change markers. The benefits-based approach has been pioneered by the ACT programme and UNDP.

Theoretically, the approaches are complementary—objectives are, after all, an indication of intended benefits. However, in practice, the weightings prescribed under the objectives-based approach are significantly higher than those prescribed under the benefits-based approach. For example, a high CC-relevant activity such as early warning systems may receive a 33% weighting under the benefits-based approach, compared with an up to 100% weighting under the objectives-based approach.

The benefits-based approach is more scrutinising, assessing any programme or project for all its benefits and then ranking these. Where a programme would still be relevant in a fictional scenario without climate change (e.g. an early warning system for an area where floods have historically been common and less affected by climate change-associated weather variability and temperature increases), it can still be highly relevant but not CC-relevant. Likewise, a development programme focused on livelihoods that also build adaptive capacity can be highly relevant for its beneficiaries and the country but only its adaptation benefits should be counted as a contribution to adaptation. Under the objectives-based approach, these programmes in their entirety would count towards CC adaptation, thereby overestimating their CC%. For more details, refer to Table 2.

On balance, the benefits-based approach is more robust, which is why ACT has been championing its use with governments in South Asia.

While ACT is developing country- and state-specific estimates of CC%, it has proven useful to also

Table 2: Estimating CC% relevance of public expenditures—a comparison of objectives-based and benefits-based approaches

	Objectives-based	Benefits-based
Basis	Assessment of the extent to which climate change is part of the explicit or implicit objectives of the programme.	Assessment of the proportion of total benefits from the programme associated with adaptation and mitigation, as compared with other types of benefits (economic, social and environmental). This is based on comparing the benefits delivered if there is no climate change (i.e., the development benefits do not change and adaptation/mitigation has no value) with the benefits if it does happen (i.e., the benefits increase—or decrease for maladaptation—and reductions in greenhouse gas emissions have a value).
Weights values	0–100%. Typically, bands or ranges are applied. For instance, CPEIRs apply three categories of weighting: 75–100%, where climate change is a primary objective of the spending programme; 25–75%, where it is one of a mix of objectives; 25% or less, where climate change is a secondary or significant implicit objective.	0–33%. 0% indicates adaptation and/or mitigation make no contribution to benefits; 33% indicates adaptation and/or mitigation make a substantial contribution to benefits and thus climate change is highly relevant to the programme's results. In a few cases, where the programme is specifically addressing climate change (such as through adaptation research), there may be a CC% score of 100%.

Continued...

	Objectives-based	Benefits-based
How it is derived	Values for objectives-based CC% can be derived through a review of programme objectives, where they are clearly specified and available. Where programme objectives are not clearly indicated, a budget manager, or someone closely acquainted with the programme, can make a judgement.	For larger programmes, and where data are available, investment in a cost–benefit analysis (CBA) approach may be justified (where benefits are converted into monetary value). Some countries will already conduct CBA as part of their routine impact assessment process (i.e., the system for estimating and comparing the likely impact of competing spending proposals). Where CBA is commonly applied to budget lines, programmes or expenditures, introducing climate change considerations into the process will likely only add a day or two for capturing CC%, as the calculation is easily added on to CBAs. In cases where evidence is limited, qualitative methods such as participatory appraisal and expert opinion may be more appropriate. This should take the form of multi-criteria analysis (MCA), where the relative importance of different categories is assessed in a subjective but structured manner.
Usage	Used in CPEIRs: It has been applied in a large number of countries in South Asia, including Bangladesh, Nepal, Pakistan, Philippines and Thailand. A variation is used in the OECD ODA database, in the form of climate change markers. The latter is a vital first step to distinguish and track climate change finance committed under UNFCCC from ODA.	Championed by ACT and UNDP. The governments of Afghanistan and Indian states have applied the approach, with ACT support. It is also increasingly being applied by UNDP in Cambodia, Indonesia and Thailand (in its 2014/15 climate change benefit analysis) (Nicholson et al., 2016).
Advantages	Intuitive and simple: It can be applied by anyone with access to programme documents and does not demand high levels of climate change knowledge, only adequate guidance on the scoring methodology. Amenable to relatively low-cost, rapid rollout across government.	Rigorous methodology, and less vulnerable to manipulation.
Limitations	Highly subjective; objectives can be interpreted in different ways. Vulnerable to 'green washing' (i.e., inflating claims of CC% in order to gain access to climate funds) (Nicholson et al., 2016).	More demanding in terms of time and capacity (particularly in its more rigorous CBA form). May need to rely on external expertise for its application as government capacity is developed. Despite the aforementioned rigour, there remains a degree of subjectivity in the estimation of the future stream of benefits from spending.

have benchmark values for different types of programmes. Annex 1 presents a synthesis of the emerging body of evidence, categorising different types of programmes into high-/medium-/low-relevance groupings and suggesting benchmark values or ranges. These values provide a basis for developing initial estimates for governments where data or time constraints prevent a fuller analysis.

A recent assessment conducted by ACT has taken this further, comparing estimated CC% scores for different sectors in countries and states, to identify cross-country patterns (ACT, 2016a).

ACT has adopted various methodologies to support governments to define benefits-based CC% scores. These are based on different entry points and data availability, as summarised below.

Table 3: Methodology for calculating benefits-based CC%

Location	Methodology
Assam	CC% was applied to an analysis of the State Action Plan on Climate Change (SAPCC) and the state budget, using various approaches, including CBA for major investments and MCA through a mix of participatory appraisal (for local projects) and expert opinion (for larger or more technical programmes) (ACT, 2015b).
Bihar	Actual expenditures were reviewed and a CC% score assigned, initially according to the benchmark classification table. An expert in climate change vulnerability who was familiar with some of the activities then refined this provisional classification (ACT, 2016d). This was done in order to be able to assess the level of existing expenditure on climate change and then in a second step describe the consistency of the Bihar State Action Plan with the existing development planning and budgeting practices in the state.
Chhattisgarh	Estimates of CC% were made for climate change-related budget items, supported by a rapid assessment where necessary (ACT, 2016e) in order to provide an idea of the spending dedicated to CC in the state.
Kerala	The expenditures were weighted using values in the standard values with the expectation that these would later be refined in discussion with programme managers (ACT, 2015c).
Maharashtra	The costs and benefits related to 14 priority actions in the SAPCC were assessed. CC% scores for 13 actions were calculated through a first rapid assessment. For five actions, a more detailed CBA has been produced to help the government identify priority actions for implementation (ACT, 2016c).
Afghanistan	The operating budget, the development budget and off-budget projects financed by development partners were analysed. Each line item and project was scored for CC% individually, based on the ranges provided in the South and South-East Asia benchmark values (ACT, 2016f). The main purpose of conducting this analysis is to help establish a framework within which project appraisal can accommodate the implications of climate change, so results can be compared with a default yardstick and can be aggregated to help government manage the total response to climate change.

2.3. Budget tracking methodologies

As part of the financing frameworks, spending—whether in the form of expenditure or budgets—has to be tracked and assessed for its climate relevance.

After selection of a weighting system to capture variation in expenditure CC% (see Section 2.2), there are a number of options around methodologies for budget tracking, each of which can potentially be teamed with either weighting system (benefits- or objectives-based) described above. This section looks at the three most commonly employed in the climate change field: budget analyses (of the sort ACT employs for financing frameworks), public expenditure reviews (in the form of CPEIRs) and budget tagging systems.

2.3.1. Budgetary analyses

Budgetary analyses may be the most common approach for tracking expenditures on climate change. Typically limited to government on-budget expenditure only, they involve defining relevant sectors and reviewing detailed budget reports from these to identify climate change-relevant budget lines. Allocation or expenditure information for these budget lines is recorded, at the aggregate level and possibly across different dimensions of the budget (e.g. broken down by economic classification, which distinguishes between salaries, operating and capital expenditures). The expenditure is then weighted, using one of the methodologies identified above (see Table 2). The analysis usually covers budget allocations as well as actual expenditure to estimate execution rates (actual expenditure as a percentage of allocated expenditure) and captures both recurrent and capital expenditure. Budgetary analyses enable trend assessments over a single-year or multi-year term.

ACT has supported climate change budgetary analyses in the context of a broader package of financing framework reforms in four states in India. Indeed, as noted above, this is typically seen as an initial step in the introduction of an FFRG in order to gauge the scale of the government's existing response to climate change. Broadly speaking, ACT's

approach to budgetary analysis in the Indian states has typically begun with a review of the entire budget and the selection of those departments deemed likely to make contributions towards climate change adaptation/mitigation. Then, for each of these departments, major head codes in the budget are reviewed and those that might be relevant are tabulated. Where major heads contain a range of different activities, the analysis considers the details of these by examining down to minor head level (i.e., for programmes or schemes). The analysis encompasses state resources and national government schemes. After these budget lines are identified, climate change relevance weightings are applied using the benefits-based approach described in the prior section.

The number and value of qualifying budget lines identified through this process have varied, as detailed below.

There are some notable advantages to using budgetary analyses for resource tracking. It is a comparatively light-touch exercise, requiring rudimentary understanding of public finances. This means government employees are well positioned and often best placed to undertake the analysis, thereby supporting ownership and sustainability. It is also relatively quick (an initial budget review could be completed in one to two days, although the decisions around relevance weightings may take longer) and can be done at low cost, and as such can be repeated on a frequent basis (such as annually, as part of budget review processes).

Regularity and timeliness is important for resource tracking exercises, as the results need to be made available to guide decision-makers and legislators and provide information to hold the decision-makers to account.

However, the budgetary analysis presents a number of limitations. It is fully reliant on the robustness of the underlying public financial management system, and in particular requires the timely publication of budget data that are sufficiently disaggregated. Sufficiently disaggregated would ideally mean the data are disaggregated to an adaptation programme level that resembles actions in a national adaptation plan and/or to the level of detail required to identify climate change-relevant expenditures. In practice, expenditure data are rarely disaggregated to the same level of detail as may appear in a national climate change plan. For example, spending may be presented only by a ministry, when the analysis requires information by programme and project.

Furthermore, on its own, a budgetary analysis will detail only *how much* money is allocated and spent on climate change, and not *how* it is allocated and spent (i.e., the difference between a budget and expenditures)—that is, it does not comment on the

Table 4: Budget and expenditure data analysed by ACT

Location	Budget data covered	No. of budget lines identified	Weighted value of budget lines identified[1]
Assam	Actual expenditure in 2013/14; revised budget in 2014/15; budget in 2015/16	578	US$324 million (2015/16)
Kerala	Actual expenditure in 2013/14; revised budget in 2014/15; budget in 2015/16	284	US$98 million (2015/16)
Bihar	Actual expenditure in 2011/12, 2012/13 and 2013/14	787	US$145 million (2013/14)
Chhattisgarh	Actual expenditure in 2011/12, 2012/13 and 2013/14	432	US$163 million (2013/14)
Afghanistan	Actual expenditure in 2013, 2014 and 2015	26 (operating) + 1,027 (development)	US$175 million (2015)

Sources: ACT (2015b, 2015c, 2016d, 2016e, 2016f).

1 An average exchange rate for INR to USD was used as 66.768 for 2015/16 and 60.936 for 2013/14: https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates

Mandawa village focus group discussion with women, Chhattisgarh.

efficacy of planning and budgeting procedures for climate change.

At the same time, a budgetary analysis will generally not assess the composition of expenditure against a set of desired outputs or policy objectives. It will reveal how much is being spent and in which sectors, but on its own a budget analysis will not compare this with a climate change policy or plan. This can be done as an additional exercise; under ACT-supported FFRGs, budget analyses are often compared with the commitments of a climate change action plan, as was done in Chhattisgarh (ACT, 2016e), to identify areas of over-commitment or under-spending. Moreover, the application of a benefits-based weighting system (as described previously) can, for instance, indicate spending on adaptation.

2.3.2. Climate public expenditure and institutional reviews

UNDP has spearheaded CPEIRs since 2011, with such reviews also conducted with the support of ODI, the World Bank, the Pacific Forum Secretariat and the German Agency for International Cooperation (UNDP, 2015a). The methodology borrows heavily from public expenditure reviews and public expenditure and institutional reviews, as elaborated by the World Bank.

It is important to recognise that budget tracking under a CPEIR is part of a broader exercise. It is one of three pillars of analysis, alongside climate change-related policies and programmes analysis and an analysis of institutional coordination arrangements for climate change. CPEIRs analyse budgetary allocations and expenditures related to climate change for a number of years (typically three). They cover the capital and recurrent budgets of government and external (donor) funders, and can capture both on- and off-budget expenditures, such as extra-budgetary climate funds. They make use of existing reporting systems, including data generated from a government's financial management information system. The tracking process under a CPEIR involves identifying relevant expenditure codes across the entire government from the chart of accounts, complemented with interviews of key government officials and donor organisations. Weightings are then applied to expenditures, typically (but not always) using the objectives-based methodology set out above (ODI and UNDP, 2012; UNDP, 2015a, 2015b).

As with public expenditure reviews in general, CPEIRs are conducted in relation to an existing policy. That is, they compare expenditure levels and patterns against an existing adaptation/mitigation policy and thus provide an indication of the resource levels required, as well as gaps, to finance their national response to climate change.

CPEIRs have spread quite rapidly since they were introduced in 2011, and have been conducted in over 20 countries to date. In addition, CPEIRs have been conducted at sub-regional and even local level (UNDP, 2015a). Their rollout does appear to be on the decline, however, with a recent stock-take report identifying only one CPEIR in 2016 (Kiribati) (Nicholson et al., 2016). In a number of

countries, CPEIRs have been used as a preparatory step before a country embarks on a full financing framework. UNDP guidelines state that:

> '... in reviewing national policy landscapes, institutional arrangements, and financial resources (both domestic and international) to achieve climate policy objectives at national and sub-national levels, it is also clear that conducting a CPEIR represents the ideal first step for countries in the process of developing a more comprehensive Climate Change Financing Framework' (UNDP, 2015b, p.3).

Financial tracking within a CPEIR framework offers a number of advantages:

- Complementary pillars of analysis enable the CPEIR to pose recommendations not only concerning levels and composition of expenditures but also for improving governance of climate change—for example how the budget process and regulatory instruments can be adapted to address climate change more effectively.
- This being a standardised methodology, data are comparable cross-country, and an online database of aggregated CPEIR data facilitates cross-country analysis. However, questions should be raised around the robustness of international comparisons, given the subjectivity of the application of CC% weights.
- This approach indicates the adequacy of the level of effort against the framework of an existing climate change policy or action plan.

However, it also brings some drawbacks: The fact that CPEIR tracking is part of a broader exercise also has implications for the cost and duration of the exercise. Typically, CPEIRs take three months to complete, require specialist technical expertise and cost circa US$150,000 (UNDP, 2015a, 2015b). This means they are not amenable to integration into government planning and budgeting processes, and in practice are not carried out very often (indeed, the authors are unaware of any countries where CPEIR has been conducted more than once, with the exception of Pakistan's federal and provincial reviews).

Assam, India.

Similar to budgetary analyses, CPEIRs are reliant on quality, detail and timeliness of budget data. Indeed, lack of disaggregated expenditure data means most CPEIRs have focused on budget allocations, which is likely to lead to an overestimation of climate change spending (UNDP, 2015b).

CPEIRs differ from FFRGs in two important aspects: 1) most of the CPEIRs done so far have applied an objectives-based approach to CC% rather than a benefits-based approach, which ACT has pursued; and 2) CPEIRs are backward-looking and do not include future financing scenarios (see Section 5).

2.3.3. Budget tagging

Institutionalised budget tags have recently emerged as an alternative tool for climate change expenditure identification and trend monitoring. They work by flagging budget codes that are relevant to climate change adaptation/mitigation on the government's electronic financial management system. Once the relevant budget codes have been tagged, reports can be generated to show how much the government is spending on climate change. This is therefore an automated means of tracking expenditure on climate change, which can potentially be fully integrated into the public finance management system.

Because the budget tag is part of the government's budget system, it usually covers only on-budget, government expenditure. The scope of the tag can vary (covering the recurrent or capital expenditure or, ideally, both) (UNDP, 2015c). A weighting process can be integrated within the system to differentiate between different levels of CC% in the tagged expenditures. Weighting budget tagging in this way is usually called 'budget scoring'. In theory, either approach for weighting—objectives-based or benefits-based—could be used, but most budget tags to date have used the objectives-based approach.

Budget tagging and budget scoring are sometimes referred to under the catch-all term 'budget coding'. This paper purposefully does not use this term because it is easy to confuse with the term 'budget code'. Introducing a climate change budget code is a very different thing to climate change budget scoring or tagging. Budget scoring seeks to identify the extent to which climate change is mainstreamed throughout the government budget, whereas

establishing a budget code means introducing a new line in the budget that is earmarked specifically for climate change purposes.

Country experience of climate budget tagging is relatively slim. In Nepal, the National Planning Commission introduced climate tagging in 2013/14 following a recommendation in the CPEIR. It adopted an objectives-based weighting system that differentiates between three categories (high, medium and low relevance). This differentiation was initially done manually but is now a fully incorporated climate tag in the budget information system (UNDP, 2015c).

In the Philippines, also following a CPEIR, a framework for Climate Change Expenditure Tagging was introduced in 2015 wherein every programme/activity/project aimed at climate adaptation and mitigation is tagged. Relevant expenditures are tagged based on their objectives; policy managers subjectively estimate the proportion of climate-relevant expenditure. This was initially introduced at the national level but has since been expanded to the local level. The tag is fully online and computerised, integrated into the existing information system, which already incorporates other tags (UNDP, 2015c; Nicholson et al., 2016).

In Indonesia, the Ministry of Finance developed the Low Emission Budget Tagging and Scoring System in key ministries in 2014. This has also been implemented in three central provinces to pilot mitigation expenditure tagging at the local level. It is partly electronically and partly manually tagged by the Ministry of Finance (UNDP, 2015c).

To date, ACT has not supported climate change tagging/scoring. However, there are plans to do so in Assam and Afghanistan, using benefits-based weightings.

There are some clear advantages of climate tagging:

- Application as part of normal budget preparation processes and integration into the government financial management system supports ownership and sustainability. Ensuring full buy-in from the ministry of finance is critical to the utility of a budget tag/score, though line agencies also need training and guidance, as they are likely to be the ones to apply it to budget lines. The complexity of this training will depend primarily on the weighting system used; it should be straightforward to perform actual application of the score into standard budget submission processes.
- Once set up, a budget tag can produce real-time reports at the press of a button.
- A budget tag can encompass the full budget cycle; it needs be applied only once (at the proposed budget stage) and it will be possible to track tagged budget lines all the way through the budget cycle, covering disbursement, expenditures and audited expenditures. This enables more precise identification of weaknesses in the climate budgeting cycle.

Whatever the expenditure tracking methodology, it should be recognised that, unless the information resulting from the tag, analysis or review is used to inform climate change policy, planning or budgeting, or to strengthen accountability around climate change commitments, it will remain an academic exercise of limited operational value. An example of a pathway to inform climate change policy would be identifying (sub-)sectors that have low levels of adaptation expenditure despite high forecast economic L&D to those sectors, and the subsequent refocusing of expenditure. An example of strengthening accountability around climate change commitments would be use of the tag, analysis or review to monitor and evaluate progress on a country's NDCs. Of course, the risk also exists for other tracking exercises. However, with CPEIRs and financing frameworks, the risk may be less apparent, since these include detailed specific actionable recommendations for improving the government's planning and budgeting for climate change. In contrast, budget tags provide the raw data to enable similar recommendations but these data often require additional analysis.

Whatever budget tracking methodology is used, it is vital that it is linked formally to planning processes to feed the decision-making process. Table 5 presents a summary of the characteristics of the three tracking methodologies. The next section discusses methodologies for estimating patterns of climate change L&D, which is a critical factor in analysing whether climate change expenditures have been strategically allocated.

Table 5: Comparison of different expenditure tracking methodologies

	Budgetary analysis	Public expenditure review	Budget tagging
Funding sources	Government, on-budget	Government and external (donor), on- and off-budget	Government, on-budget
Classification of expenditure covered	Allocations plus actual expenditures where available	Allocations plus actual expenditures where available	Potentially captures transactions across the cycle, from planned allocations, to approved allocations, releases, expenditures, and audited expenditures
Summary of the process	Relevant sectors defined. Review of detailed budget reports from those sectors to identify climate change relevant budget lines. Tabulating expenditures/ allocations against relevant budget lines at the aggregate level and across different dimensions of the budget. The expenditure is then weighted, using either methodology.	Identification of relevant expenditure codes in the chart of accounts. Interviews of key government officials and donor organisations. Weightings applied, typically using the objectives-based methodology. Expenditure levels and patterns compared against an existing climate change policy. Accompanied by complementary analyses of climate change-related programmes of climate change institutional coordination arrangements.	Budget codes relevant to climate change adaptation/ mitigation are flagged on the government's electronic financial management system. Reports are generated that show how much is spent on climate change. CC% weightings can be captured in the tags ('scores'), usually using the objectives-based approach.
Advantages	Light-touch exercise, easily applied by government employees. Quick (one to two days,) and low cost, so as to be repeated on a frequent basis (such as annually, as part of budget review processes).	Findings relate to governance of climate change, as well as levels and composition of expenditures. Standardised methodology, comparable cross-country. Indicates adequacy of effort against an existing climate change policy or action plan.	Fully integrated in government systems and processes; supports government ownership and sustainability. Once set up, a budget tag can produce real-time reports at the press of a button. A budget tag can encompass the full budget cycle.
Limitations	Reliant on timely publication of budget data that are sufficiently disaggregated. Does not reveal the efficacy of planning and budgeting procedures for climate change. Unless additional work is done (e.g. benefits-based weighting), does not assess the composition of expenditure against a set of desired outputs or policy objectives.	Time consuming (takes three months to complete), requires specialist technical expertise and is costly. This means it is not amenable to integration into government planning and budgeting processes. Reliant on quality, detail and timeliness of budget data.	Does not assess the composition of expenditure against a set of desired outputs or policy objectives
Uses	ACT financing frameworks	CPEIRs	Governments' and donors' electronic financial management systems

3. Economic losses & damages

3.1. Losses & damages

At the core of FFRGs is the computation of economic L&D estimates, which measure the economic impact of climate change on GDP in the mid to long term.[2] This takes into account the exposure of the domestic product and its sensitivity to climate change.[3] There is broad consensus that climate risks and the impact of climate change will grow significantly and incrementally in the coming decades: most financing frameworks estimate that GDP growth will be 3–5% lower by 2050 (Ahmed and Suphachalasa, 2014). As such, measuring economic L&D is important when planning and budgeting for services, to make it possible to better understand adaptation needs and the adaptation gap and to plan a response to climate change. Other studies suggest an even higher economic impact of climate change, given its potential to affect the engines of economic growth and generate compounded or year-on-year effects (ACT, 2017).

The impact of economic L&D varies across countries, regions and states based on:

- Climate change exposure: This is based on the geographical location, topography and social composition of a state, country or region. For example, flood plain and coastal areas are generally more exposed to climate change. Similarly, lower-income households are more vulnerable to climate change than higher-income households.[4]
- Sectoral composition of an economy: Climate change has a higher effect on sectors such as agriculture, fisheries, urban infrastructure and health. The extent of economic L&D by sector is calculated using various methodologies, summarised below. The estimation of economic L&D on the economy as a whole is conducted by multiplying the average sectoral impact with the sectoral share and an adjustment factor. This is based on the exposure of the location to different risks.

Economic L&D estimates in the literature thus depend on variety of factors, including the exposure of the economy, its sectoral composition, the quality of the data and the different methodologies that might be used.

3.2. Review of existing economic L&D computation methodologies

Methodologies to calculate economic L&D are broad and constantly evolving. Note that modelling approaches to estimating the impact of climate change on GDP typically have three levels. Each of these will have its own assumptions and ranges of uncertainty.

1. Modelling climate change impacts on temperature and precipitation under different emissions scenarios and, in some cases, analysis of different climate models (i.e. ensemble models);
2. Analysis of climate impacts on sectors, such as the effect of changes in temperature and precipitation on yields of specific crops or on hydrology and hydropower generation potential;
3. Modelling the impact of the aforementioned changes on the economy or GDP growth—such as the impact of decreased wheat yields on agricultural revenue/GDP.

Currently, no single framework encompasses all methodologies, which range from simple observation and accounting techniques to more complex simulation models. Ultimately, the method used depends on data availability, as it is often the case that the required detail, the level of comparability and the number of data observations are not available. Methodologies used to calculate economic L&D can be classified into:

1. Rapid assessments at sectoral level that make use of broad assumptions, proxies and pre-existing measures of sensitivity to climate change. For example, these techniques are used when calculating average crop yields over the past 10 years (which assumes constant

2 Any analysis that measures this impact must measure in a first step the increases in temperature and weather variability that climate change will have in a region or country, then the impact of said increases on outputs of the economy (e.g. increases in yields of some crops; decreases/outfalls of others; destruction of infrastructure through floods; decreased worker productivity owing to heat waves) and then the subsequent impact of the effect on outputs on overall GDP.

3 Exposure measures actual climate change in the location; sensitivity measures the impact of climate change on biophysical and socioeconomic systems, without adaptation. Care needs to be taken to avoid double-counting with the above L&D.

4 Adjustments owing to exposure to climate change are included in L&D estimates through a 'sectoral adjustment factor', which varies from 0 to 2. A factor of 1 signifies that there is no evidence that the net impact of climate change will be different to the average for a country or region.

technological change); climate change economic L&D in forestry (which can use a measure of climate change damage on crops as a proxy); or loss of health owing to climate change (which takes pre-existing sensitivity of health to climate as published by the World Health Organization). In practice, these techniques are often used because of limited availability of research and data on sector sensitivity to climate change, particularly at subnational level.

2. More elaborate vulnerability assessment techniques, particularly for sector studies. These make use of more advanced analysis, such as spatially explicit geographic information systems, as well as other calculation techniques (such as risk and hazard probability models or statistical downscaling models). Coarse-resolution climate model (General Circulation Model, GCM) simulations are an example. Although these methods provide more accurate and context-specific data, they can be costly and require the input of experts to produce estimates (UNFCCC, 2005).
3. Modelling techniques that include both economic and biophysical components. When possible, GCMs should be made use of. GCMs are representative of physical processes in the atmosphere, ocean and cryosphere, and land surface. GCMs, possibly in conjunction with nested regional models, have the potential to provide geographically and physically consistent estimates of regional climate change, which are required in impact analysis. Other popular methodologies used to date include catastrophe risk models, which use Monte Carlo techniques to generate L&D simulations, and integrated assessment models, which make use of computable general equilibrium models (Surminski et al., 2012).[5] However, these models still fall short when trying to measure vulnerability to the less quantifiable effects of climate change, and they require data, which are not always available. Therefore, most assessments of vulnerability to climate change do not make use of this third set of techniques.

ACT has conducted a range of studies that have entailed a wide variety of approaches to estimating economic L&D. Overall, the choice of approach taken has been a practical one: making use of methodologies for economic L&D based on data availability and pre-existing assessments. For example, state action plan financing frameworks (SAPFINs) for Bihar, Chhattisgarh and Odisha and the financing framework for Afghanistan include estimates of economic L&D based on a combination of simulation models, historical data (e.g. rainfall or flooding trends) and international evidence (for required values that do not have national estimations). However, simulation models do not generally go beyond GCMs. Contrastingly, SAPFINs for Assam and Kerala rely on pre-existing international measures for vulnerability and apply these to their estimates for economic L&D. Further support to regions/countries in terms of developing better estimates on sector-level economic vulnerability will be an important step towards improving financing frameworks.

5 These model the relationship between emissions, effects on the climate and the physical, environmental, economic and social impacts of climate change to identify the optimal policy response—the option that maximises the difference between benefits and costs (i.e. net benefits).

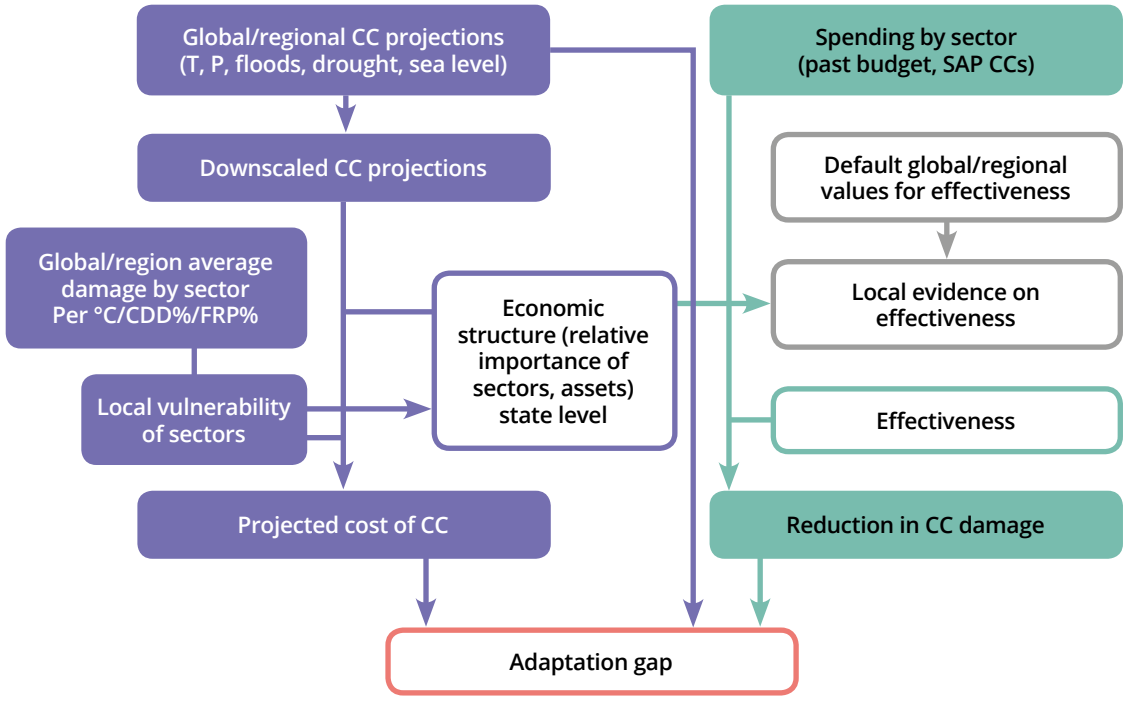
4. Adaptation gap

Another computation that forms part of the FFRGs is that of the adaptation gap. This measures the difference between adaptation needs (total adaptation spending required to avoid all climate change economic L&D) and the adaptation supply (actual or planned adaptation spending). A slightly different perspective of this definition can be adopted, which compares the projected level of climate change economic L&D with the expected reduction in this economic L&D as a result of existing and planned expenditure. The total adaptation gap can then be expressed as a monetary value (US$), as a percentage of GDP, as a percentage of total L&D or as a percentage of adaptation needs. It can also be expressed in current value or as changes over time, depending on the cumulative implications of climate change economic L&D and adaptation spending.

Figure 2 summarises the framework for calculating the adaptation gap and shows the two lines of analysis, with the assessment of projected damage/loss on the left flow and projected reduction in damage/loss on the right. This same approach can be used to calculate the adaptation gap by sector.[6]

Furthermore, adaptation gap estimates need to consider change over time. This entails a number of challenges. First, there is a need to untangle adaptation and development benefits from adaptation actions. This can be done by weighing the adaptation benefits by pursuing a benefits-based approach, as outlined in Section 2.1. Second, unlike most development benefits, the stream of adaptation benefits is not constant, but grows in line with the severity of climate change and consequent growth in losses averted. The

Figure 2: Analytical framework for measuring and monitoring the adaptation gap



Notes: CDD% = percentage change in consecutive dry days, as a measure of the change in drought; FRP% = percentage change in flood return period, as a measure of change in flooding; T = temperature; P = precipitation.

Source: Allan et al. (2016).

6 This level of analysis is still not sufficiently reliable to be used for policy or for monitoring, as sectoral expenditure data still have high levels of aggregation.

cumulative impact must be considered in the calculations of adaptation benefits over time.

Estimates for adaptation needs are derived from the monetary value of economic L&D. This is calculated using economic L&D methodologies, adjusted by the expected effectiveness of spending or return on investment expected or assumed in terms of L&D reduction.

Besides the climate change-relevant expenditure (see Section 2), estimates for the adaptation supply are also based on:

- Future trends in domestic and international expenditure on climate change. These are estimated by means of financing frameworks, informed by evidence from medium-term expenditure frameworks (MTEFs)[7] on planned expenditures in the short and medium term. These estimates can be compared with spending ambitions in national adaptation plans and other policy documents, which are typically higher than realistic expectations. However, currently there is no overarching framework for assessing the relative scale of commitment to adaptation in each country and the effectiveness of action. As financing frameworks and expenditure analysis continue, it will be possible to measure realistically commitment and effectiveness.
- Evidence on the effectiveness of climate change spending. This is calculated by means of the reduced value in climate change economic L&D per unit of expenditure. A wide range of techniques are used to calculate the effectiveness of adaptation spending, including participatory analysis, MCA and CBA. Theoretically, CBA is the most effective methodology to assess public spending, as it directly places the cost of climate change alongside the cost and benefit of adaptation actions; however, in practice it is generally combined with qualitative assessments. Many of these effects are calculated using pre-existing international evidence, applied to a specific case study. To date, for Assam, Bihar, Chhattisgarh, Kerala, Maharashtra and Afghanistan's financing frameworks, a benefits-based approach[8] has been adopted (with some using benchmark values based on regional evidence). Nepal and Pakistan have used the objectives-based approach,[9] which typically is used in CPEIRs. Other locations where CPEIRs have been conducted have overwhelmingly made use of objectives-based approaches (e.g. Kiribati, Morocco). The Government of Odisha has used an objectives-based approach, following the Climate Change and African Political Stability Programme methodology.[10] Improving understanding of how public spending effectiveness changes with climate change is important for strengthening adaptation planning in South Asia, which ACT is working on and should continue with (Nicholson et al., 2016).

7 An MTEF is an annual, rolling, three-year expenditure plan. It forecasts the medium-term expenditure priorities and hard budget constraints against which sector plans can be developed and refined. MTEFs also contain outcome criteria for use in performance monitoring. MTEFs together with annual budget framework papers provide the basis for annual budget planning.

8 This approach focuses on the proportion of total benefits from the programme that are associated with adaptation and mitigation, as compared with sustainable development. This is done by applying a CC% score.

9 These focus on an assessment of the extent to which climate is part of the explicit or implicit objectives of the programme.

10 Under this methodology, each activity is given a code for climate relevance using a spectrum of four categories, and a score from 0 to 2.

5. Climate adaptation future financing scenarios

In order to close the adaptation gap, it will be necessary to tap an array of sources for funding. Adaptation finance enables activities that address current and expected effects of climate change. Closing the gap will require governments not only to evaluate these investments but also to define realistic financing scenarios of likely available funding and then match these scenarios with adaptation actions. Particularly for adaptation, it is often stated that public finance alone will not suffice; it is expected that businesses and households (end users themselves) will make most of the investment in adaptation. Moreover, national sources are expected to be more important than international sources of finance.

Financing scenarios should consider the different *types* of sources and instruments, because an optimal financing option may depend on the adaptation action funded. Depending on the adaptation investment needed, different climate adaptation finance sources are available. Many types of climate finance could be established, based on the landscape of climate change mitigation and adaptation financing. This can be broken down into sources (public and private) and instruments (as in Figure 2). A typology could also be based on how funding is raised (mandatory/voluntary) and whether it is lent at market or concessionary rates or given as a grant. Adaptation finance includes both voluntary and mandatory financing. Mandatory financing can be provided through assessed national contributions; international levies; or obligations passed on to the private sector—as well as through a combination of these (Stockholm Environment Institute, 2009). Voluntary financing of climate adaptation is market-/incentive-based or—to a limited extent—philanthropic.

Figure 3 presents a landscape of climate finance that shows climate finance flows along their lifecycle for the latest year available, in 2013/14. It represents a snapshot of the lifecycle, from sources and intermediaries to finance instruments, recipients and their uses.

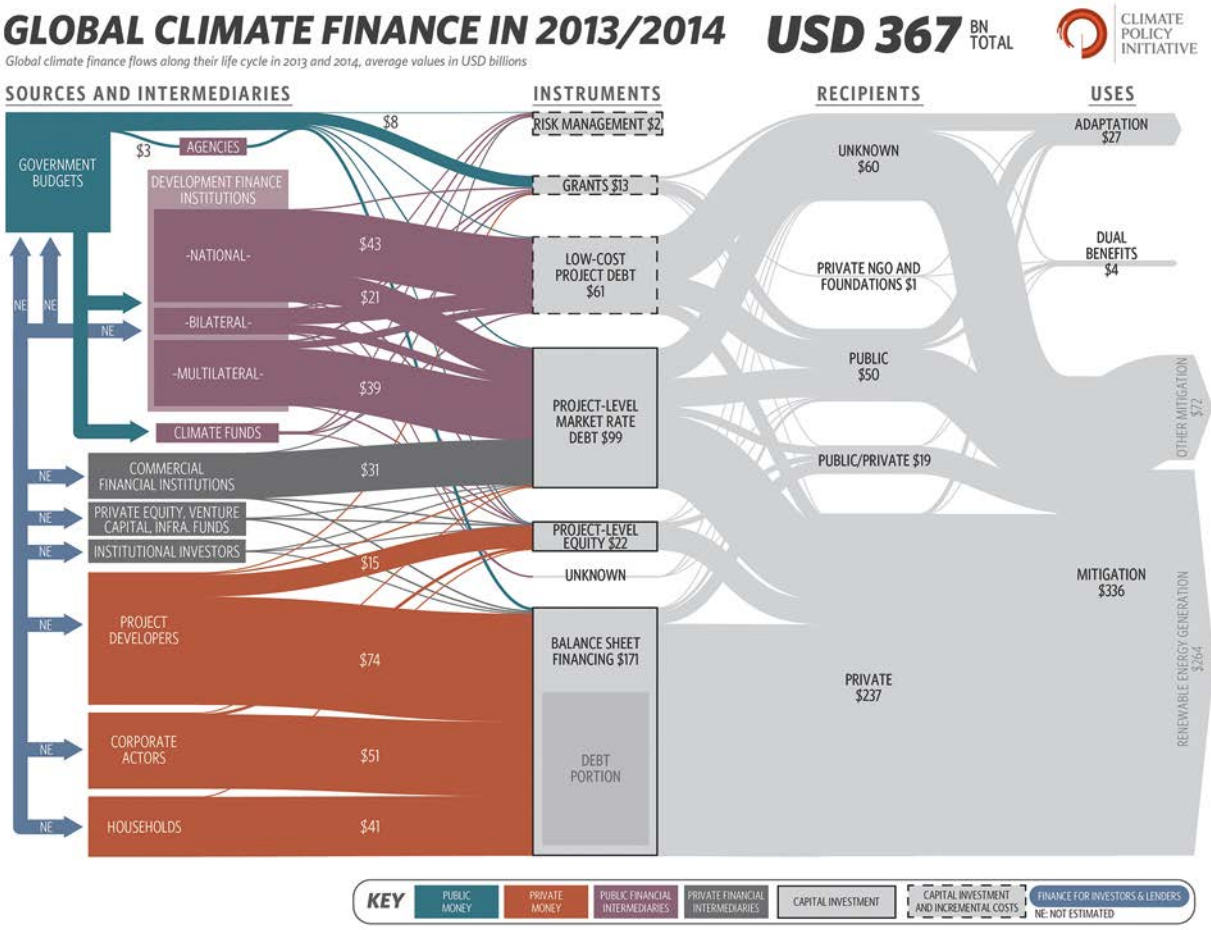
Data on state-owned enterprise investments in climate funds, land use and adaptation remain elusive. Moreover, the domestic public budget for climate-related development not captured by the Climate Policy Initiative's (CPI's) methodology could reach at least US$60 billion a year (CPI, 2015.

Total climate finance flows for adaptation and mitigation were US$342 billion in 2014. Public climate finance was ascending compared with previous years, with contributions by governments and intermediaries reaching at least US$151 billion as the benefits of climate action were acknowledged. Private finance increased by nearly US$50 billion in 2014, driven mainly by new renewable energy investments, many of them in China (CPI, 2016).

It is in this landscape that adaptation finance is accumulating. How should climate finance scenarios—that is, future levels of available climate finance—be sketched? By assessing the current levels of these different sources and then extrapolating their growth into the future. Some research on the likely availability of future funding for climate-related expenditure is required—availability within the budget, from climate funds or from the private sector. Often, projections of likely growth in climate finance can be made in only very rough terms. It is likely that both public and private finance will grow slightly faster than GDP as climate change becomes more obvious and governments along with private enterprise respond to the associated challenges and opportunities. For other sources, such as international climate funds, a view to their level of capitalisation and commitments to particular countries/regions is advisable when gauging the level of funding expected from them. Figure 4 displays the composition of sources of finance over a five-year period as well as under two different scenarios. This exercise also sheds light on risks in a planned funding strategy, such as overreliance on possibly unsecure sources.

ACT's experience in Kerala in projecting future financing scenarios as part of a financing framework is instructive. As a first step, the team linked the financing allocations of the State Action Plan (SAP), a policy document detailing the adaptation actions needed in the state, with the budgets available. Then, both the budget and action plan figures were weighted by CC%, to facilitate comparison. The team found that SAP actions were planned more in some sectors than in others. The financing frameworks aim to help government follow through this thinking to assess the extent to which some SAP actions are best funded and/or managed within the budget. The ACT team further helped describe the availability of funding from the main financing sources for the SAP, which involved matching the actions to sources available and making assumptions about the amount of international climate finance that would be available.

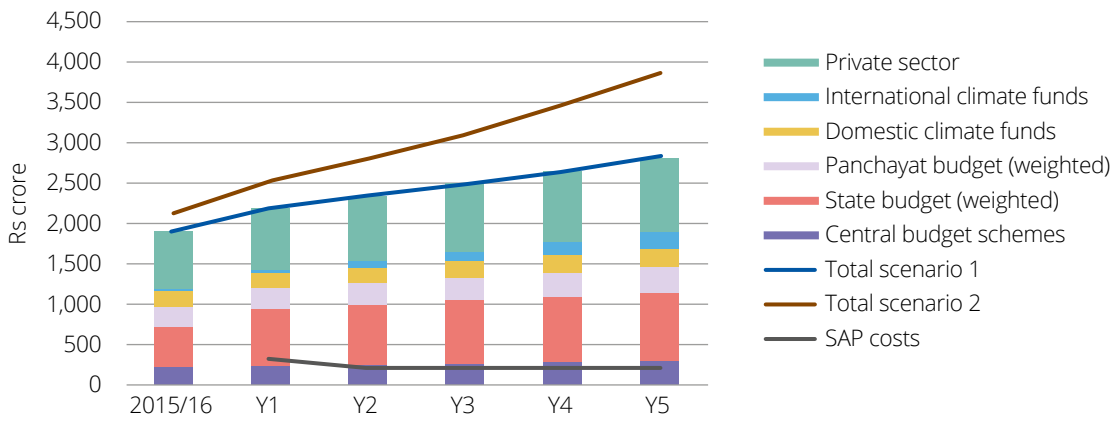
Figure 3: Climate finance landscape, 2014



Note: Public actors include governments, bilateral aid, climate funds and multilateral, bilateral and national development finance institutions. Corporate actors include non-energy corporations and manufacturers. The 'household' category refers to family-level economic entities, high net-worth individuals and their intermediaries. A common household investment would be a small-scale solar installation. CPI's methodology has self-acknowledged accounting gaps that may have substantial implications for these figures.

Source: CPI (2015 and 2016).

Figure 4: Example of a set of climate financing scenarios



6. Institutionalising climate finance to fill the gap

In order to fill the gap, governments will have to combine a set of actions: increase resources dedicated to climate change, reshuffle resources to the most climate change-relevant activities and seek to access new sources for financing for climate change adaptation. Mainstreaming climate change into budgets and planning sustainably will require anchoring the mainstreaming approach into institutions.

Apart from the inadequacies of climate funds and scarce adaptation funding from budgets, another challenge countries face relates to weak capacity in planning for adaptation and in accessing climate finance. Varying governance and institutional barriers and enablers exist in relation to governments integrating climate finance in their planning and budgeting processes and accessing international funds. ACT's experiences of working with state governments in India as well as with federal governments in Afghanistan, India and Pakistan have highlighted diverse challenges and opportunities in accessing climate finance and mainstreaming this in planning and budgeting processes (Allan et al., 2016). These challenges and opportunities have helped in identifying entry points for institutionalising climate finance within government systems and providing key lessons for practitioners, policy-makers and others.

While all ACT programme locations share an overarching objective of creating more adaptive capacity, the enabling factors and underlying operational objectives vary between countries and governments. Some governments have been motivated by a desire to improve the overall efficiency of public expenditure, others by a wish to promote institutional reforms. In most countries, the possibility of raising new funds has been the enabling factor (Nicholson et al., 2016). This has resulted in a variety of initiatives being undertaken under the umbrella of accessing international funds and financing frameworks. It has also provided an opportunity to design different approaches to prioritising actions in climate action plans and allocating budgetary resources to suit the national circumstances of respective governments.

Using the experiences of ACT, UNDP and other actors, this section elaborates on the varying governance and institutional barriers and enablers governments encounter in integrating climate finance in their planning and budgeting processes and accessing such finance from other international funds.

6.1. Aligning climate-relevant costs/ expenses with development drivers

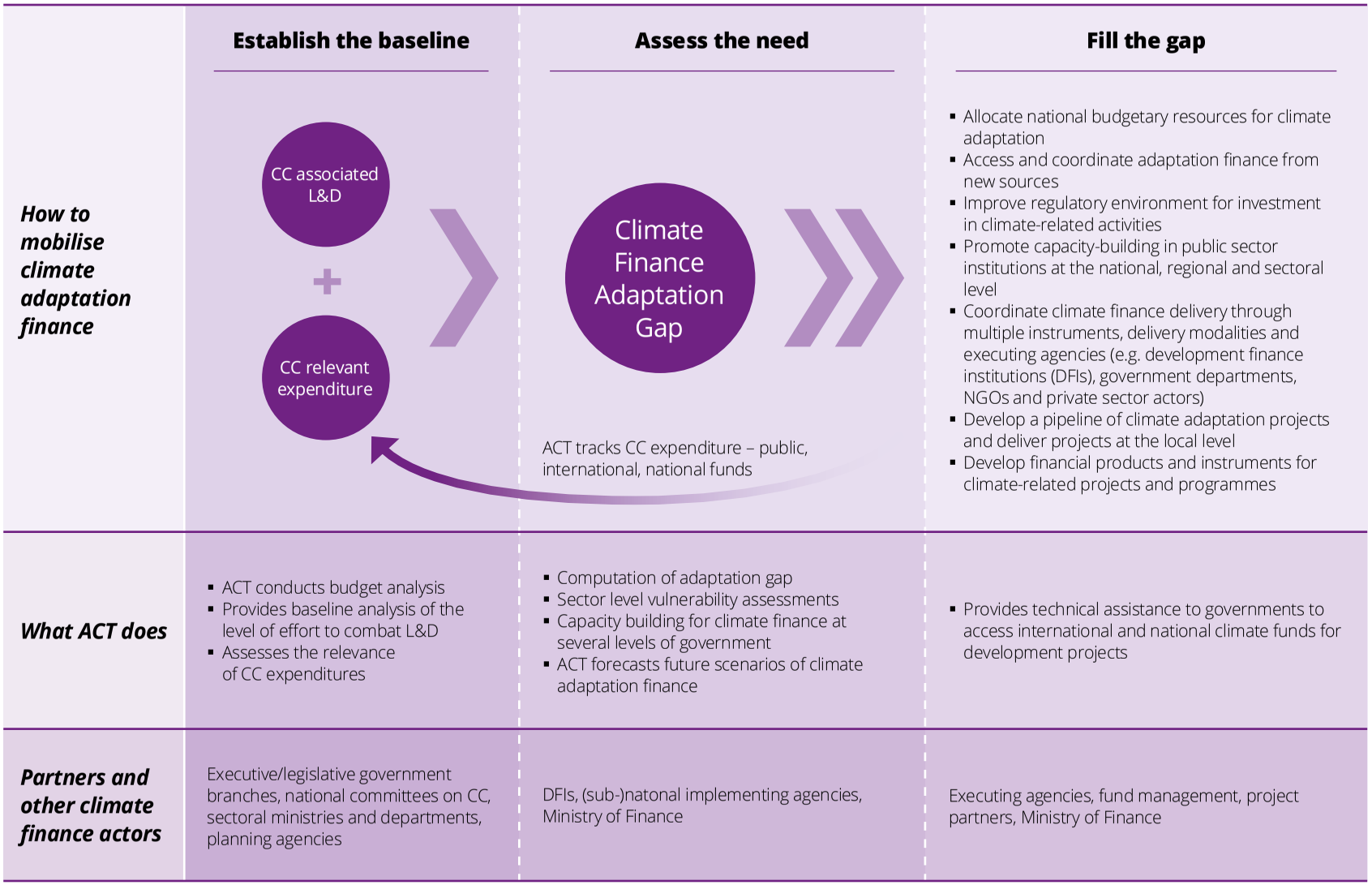
Identifying the climate-relevant costs of adaptation and development actions has revealed synergies between climate expenditure and development budgets. In Afghanistan, even though climate change financing frameworks are in their initial stages, linking climate finance costs with development activities has created a positive initial momentum. ACT supported a CPEIR that identified climate-related expenditure in Afghanistan's budget and provided the government with a basis to request additional funds internationally. This evidence of climate expenditure has also helped ACT further engage with the government to link adaptation activities with Afghanistan's development priorities.

In Odisha, linking the impacts of climate change on agricultural production and agriculture value chain development has helped initiate a process of engaging government stakeholders on the issue. In Pakistan, policy-makers now view national and provincial development priorities through a climate lens and, drawing on recent success with the Green Climate Fund (GCF), are in the process of developing a project pipeline for accessing more GCF funds, thereby opening access to increased financial resources.

6.2. Choosing from different elements of financing frameworks to suit government needs

Financing frameworks entail calculating potential loss and damage, reviewing past climate expenditure trends, identifying the degree of CC% of adaptation expenditure and allocating financial resources to tackle climate change. It is important to pick from these different elements of the financing framework based on government capacities and needs. For example, the Government of Kerala already has a basic understanding of climate impacts on development and has shown interest in the entire SAPFIN package. This level of understanding and engagement suggests several or all elements of the financing framework could be of interest in Kerala. In Afghanistan, understanding of climate change issues is still emerging, thus the CPEIR has acted as an entry point for ACT to implement

Figure 5: **Financing Framework for Resilient Growth**



Accessing climate finance

While it will be necessary for countries to mobilise their own finances to fund adaptation actions, additional financing from national or international funds, such as India's National Adaptation Fund (NAF), the Green Climate Fund (GCF) or the Global Environment Facility (GEF), is helpful, given their flexibility and catalytic influence. In ACT, processes to help governments secure international climate finance have been seen to be effective entry points for wider work on mainstreaming climate change in the governments' financial plans and budgets.

So far, ACT has trained 533 stakeholders to access this funding. Across locations, government officials have been trained in developing proposals and in understanding modalities for accessing external climate finance. In Afghanistan, staff of the newly established Climate Finance Unit have received training on accessing and deploying international climate funds. In Pakistan, training on accessing climate finance has taken place at different levels, from federal to provincial. In India, five of the six state locations have engaged government officials from key departments on climate finance proposal development, leading to an increase in the number of proposals for funding.

These activities have led to ACT supporting governments to secure over US$127 million from a variety of climate funds. Some successful proposals include:

1. Odisha, India: Ground Water Recharge and its Sustainable Management to Ensure Food Security and Enhance Resilience in Vulnerable Tribal Areas of Odisha. This has a total value of US$169.39 million, of which US$37.45 million has been secured from GCF and the remainder has been co-financed through the Government of Odisha and the World Bank.
2. Pakistan: Scaling-up of Glacial Lake Outburst Flood Risk Reduction in Northern Pakistan, which has received US$37.5 million from GCF.
3. Assam, India: Management of Ecosystem of Kaziranga National Park by creating climate-resilient livelihoods for vulnerable communities through organic farming and pond-based pisciculture, which has received 24.76 Rs. crore from India's NAF. This is one of eight successful projects totalling US$28,586 million that ACT has supported from NAF.

Climate finance units

ACT has provided technical and financial support to the establishment of climate finance units (CFUs) in Afghanistan and Pakistan to support governments in accessing and managing climate finance. These carry out a number of functions, which include mapping available international climate finance opportunities; supporting the development of funding applications and proposals; building the capacity of line ministries to access international climate finance, monitor and report on finance accessed; and mainstreaming climate change in domestic plans and policies.

In Afghanistan, the CFU was inaugurated in February 2017 and is attached to the National Environmental Protection Agency. The Unit is currently engaged in developing a strategy to secure international climate finance for the country's National Resource Management Strategy (which ACT 'climate proofed' in 2016). This apart, the CFU is engaging with all relevant line ministries to enhance their understanding of international climate finance and to identify priority projects that may be eligible for funding. The CFU will also be supporting the rollout of the FFRG with the Ministry of Finance.

In Pakistan, the CFU comes under the purview of the Ministry of Climate Change and has had a role in successfully securing US$100.7 million since ACT started. The Unit is currently engaged in preparing three proposals for international climate finance in close collaboration with different line ministries. The CFU also provides training to provincial governments on accessing and managing international climate finance.

Crucially, as Pakistan's CFU has been operational for a few years already, it is actively advising the newly formed CFU in Afghanistan, thereby allowing ACT to harness substantial regional synergies.

financing frameworks in the country. ACT is also building on this work to assist the Government of Afghanistan in identifying projects for climate finance funding. Similarly, in Maharashtra, the government has recently developed its State Action Plan on Climate Change (SAPCC) and has asked for analytical support in the form of CBA and CC% assessment to prioritise actions for financing and implementation.

6.3. Institutional leadership

Institutional leadership has acted as an important factor in integrating climate finance in budgetary processes. Depending on the country, ministries of finance (given their central role in financial allocations), ministries of planning (which have control over the development budget, where this is separated from the recurrent budget) or ministries of environment and climate change (which are the primary source of knowledge on climate change, where they exist) each have a unique role in anchoring the institutionalising reforms for climate finance within a country. In Afghanistan, the Ministry of Finance leads on climate change budgeting and the National Environment Protection Agency (the environmental policy-making and regulatory institution) has established the CFU for accessing international climate funds.

6.4. Climate change champions

Identifying the right stakeholders within government can catalyse efforts to mainstream climate change finance within government institutions, plans and budgets. Government champions with the ability to develop the inter-linkages between climate change and development have played an important role in internalising the climate agenda within government planning and budgeting processes. Furthermore, increased access to international climate finance has also contributed to increasing levels of interest among progressive government officials. In India, where access to politicians can be challenging, advocacy work has focused on bureaucrats, who are establishing the overlaps between climate adaptation and state development plans. The need to balance messages on climate change L&D and share positive prospects derived from success stories of climate adaptation finance interventions have helped convince government officials to take actions on climate change. In Pakistan, the Prime Minister's advisor on climate change is helping build political leadership and coordinating as a climate champion between the Ministry of Finance, the Ministry of Climate Change and the Prime Minister's Office.

Figure 6 illustrates how the framework can be applied across the budget cycle.

Figure 6: FFRGs and budget cycles

7. Key lessons from applying financing frameworks

Over the course of ACT's work on mainstreaming climate change across budgets and developing financing frameworks, several key lessons on the use of such frameworks have emerged:

- Initial analysis reveals that adaptation requirements are high and funding is going to be a stumbling block in realising national adaptation goals. Thus, it will be vital at a very early stage to identify various funding sources and start developing strategies to target these based on region-specific needs. Different sources fund different kinds of activities, and it is worthwhile to examine which programmes in climate change action plans should be funded with which resources.
- Climate change impacts (whether in the form of immediate weather variability or long-term degradation through slow-onset effects) are more easily understood when translated into economic cost. FFRGs and computation of the adaptation gap present adaptation investments as the potential for economic growth in every year. Disaggregating this by sector makes it easy to translate into budgets—and into appraisals of new competing adaptation spending options. Beyond projection of the growth trajectory, the economic cost of climate change can also be put in fiscal terms or in terms of the discretionary budget that would be tied up rather than being available for other purposes.
- Countries will have to rely on their own fiscal resources to fund adaptation. While donor funding can be an effective entry point to work with governments and possibly a catalyst for other funding, it will make only a marginal contribution to what is needed financially to fill the adaptation gap. As adaptation finance is more likely to be publicly than privately funded, this reinforces the need to focus on public budgets. Adaptation finance provided to developing countries accounts for about 25% of total climate change finance. As the private sector is more likely focused on profitable mitigation actions (largely in the energy sector), along with multilateral development banks, which also fund mostly mitigation actions (80:20 split), adaptation action funding remains contingent on public funding—although there has been a slight increase in the proportion of adaptation finance coming from climate funds and bilateral concessional channels. Given that adaptation needs are high and governments will have to fund most of this themselves, the need to mainstream climate change into planning at this level becomes evident.
- Availability of timely and sufficiently available budget data is a challenge in all budget tagging or scoring. Governments may be reluctant to share disaggregated budget data or information because they are sensitive or preliminary.
- Institutional strengthening is paramount: Rather than focusing merely on finance volumes (which non-policy-makers are unlikely to influence), ACT looks at broader issues related to domestic capacity to integrate climate change into development processes. In Afghanistan and Pakistan, CFUs have been formed and their members trained to form a community of practice on climate finance. In Odisha and Pakistan, this has included training to apply for large amounts of GCF funding.
- Studies show that, besides lack of finance, issues that often hamper the effectiveness of existing climate finance include limited availability of and access to climate information; lack of coherent policies, legal and regulatory frameworks and budget; and a lack of clear priority actions to address climate change identified through transparent multi-stakeholder processes (Nakhooda et al., 2014; UNFCCC, 2016). It is important to strengthen the capacities of national institutions to plan, budget, track and monitor climate finance. This holds true in particular for the adoption and continued use of the financing frameworks, as these are often perceived as technical and complex. Although FFRGs are conceptually intuitive and simply introduce climate change into the key elements of routine development planning, their practical application can be challenging.
- It is important to achieve the right balance between mainstreaming and concentration when assigning responsibility for adaptation within government. Planning and budgeting is an inherently sectoral process. Budgets are compiled, appropriated and executed by ministries, departments and agencies, through an organisational landscape of government

that tends to be highly static.[11] In contrast, climate change is a cross-cutting concern; its effects are registered across a broad range of sectors and the responsibility for adaptation, which is typically a by-product of development programmes, is similarly diffused throughout government. There is a challenge, therefore, in reconciling a cross-cutting priority with the organisational structure of a budget.

This last issue is not unique to climate change. Governments and donors have grappled with other cross-cutting concerns within the budget process, including gender, HIV/AIDS, environmental issues and nutrition, among others. Where mainstreaming of these topics has been attempted, it has proved difficult to extend this beyond the strategic planning stage of the budget cycle and challenging to integrate it into budget formulation, execution, accounting and reporting. In some instances, mainstreaming has amounted to little more than a box-ticking exercise in plans, and has had no real impact on how funds have been spent. Another lesson that has emerged is that, to avoid the 'responsibility of everyone' becoming the 'responsibility of no-one', it is necessary to secure the leadership of an entity with sufficient leverage and influence to ensure sensitisation and compliance. In many countries, the ministry responsible for the particular topic (ministries for women or for gender; social affairs ministries for nutrition, etc.) does not possess this leverage.

Selecting the right partner institution to lead this mainstreaming process is critical, and usually means reaching out to less traditional counterparts for climate-focused initiatives, such as the prime minister's office or equivalent (typically a senior office with a coordination mandate) or the ministry of finance (given its responsibility for setting ceilings, developing budget guidance and reviewing agency submissions, all of which should take climate change into account). Building bridges into these institutions can take time, and involves identifying well-positioned focal individuals to champion the climate change agenda, as well as outlining clear indications of the potential threat to economic growth. Political economy analysis can help in identifying these individuals and their motivations.

- Engaging with the political economy of climate finance policy and governance contexts is crucial to ACT's success. First, ACT actively maps 'key influencers' across each governance context in which it is operational, to determine who will be crucial in helping it achieve its goals on accessing and mainstreaming climate finance. Thereafter, bespoke and contextually tailored engagement strategies are deployed to secure the support of these key influencers. Second, ACT undertakes a programme-wide political economy context assessment exercise on an annual basis. This allows the programme to ascertain any shifts in the political or governance contexts in the nine locations in which it is operational, permitting course correction through adaptive management. Third, ACT staff have found that it is vitally important to align with prevailing policy narratives in different governance contexts to secure action on climate finance. This means that, many times, the initial conversations between ACT and different governments are focused not on climate change at all but on economic growth, disaster risk reduction, private sector engagement or other such existing local priorities of the government. Fourth, ACT's work on climate finance has received traction as it actively desists from imposing external priorities on governments and instead focuses on generating demand for support on accessing and managing climate finance from within. This is made possible by ACT staff developing strong relationships of trust with governments, which is helped by the fact that the programme has permanent staff and offices in all the locations in which it is active. It is also made possible through the institution of formal flexible finance streams such as the Rapid Response Mechanism, which allows ACT to invest in small, strategic tasks that are not part of location strategies but have been requested by governments and will be crucial to achieving programme objectives.
- An FFRG, or parts of it, should be applied only where it can meaningfully inform planning and budgeting. Where spending decisions are made ad hoc or where information rendered by such frameworks is not expected to inform decisions on spending, they will be ineffective. By informing decision-makers on L&D, the CC% of spending, availability of funding and the like, FFRGs can steer spending more effectively toward actions that build adaptive capacity and resilience.

11 Even in the context of advanced programme budgeting reforms, where budgets are structured into bundles of services with common objectives, the clustering of activities into programmes tends to align with the organisation of government and to reflect the assignment of legal mandates.

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Annex 1: Standard values for the climate change relevance of public expenditure

	Green development					
	Sustainable development			CC%		
	EC%	SO%	EV%	MI%	AD%	Total
Highest CC%						
Climate change planning, management, capacity, studies	0	0	0	100		100
Hydrometeorology, early warning	40–50	10–20	0	0	33	33
Livelihoods for climate change-vulnerable households	40–50	10–20	0	0	33	33
Coastal protection from sea level rise	0	0	0	0	100	100
Protection from saline intrusion	20–50	10–30	5–10	0	25–75	25–75
Irrigation and drainage	50–70	5–20	0–5	0	10–33	10–33
Flood protection/proofing	40–50	10–20	0	0	33	33
Disaster risk reduction and management	25–50	25–50	0–10	0	33	33
Middle CC%						
Agriculture, rural development, food security	40–50	10–20	0–10	0–5	5–20	5–25
Forestry protection	5–10	5–10	60–95	5–15	0–10	5–25
Forest management	20–50	5–20	30–50	5–20	5–20	10–40
Renewable energy	70–90	0–10	0–10	5–20	0–5	5–25
Energy efficiency	70–90	0–10	0–10	5–20	0–5	5–25
Lower CC%						
Livelihoods for general households	50–70	20–30	0	0	5–10	5–10
General infrastructure (roads, urban…)	90–99	0–10	0	0–1	1–5	1–5
Sanitation and waste	20–30	20–30	50–75	0–5	5–15	5–20
Water quality	50–70	20–30	0	0	5–10	5–10
Public health for climate-sensitive diseases	30–50	30–50	0	0	5–10	5–10
Public transport	60–80	10–20	5–10	1–5	0	1–5
Uncertain						
Fisheries, aquaculture	40–50	10–20	0–10	More research needed		
Biodiversity, wildlife, eco-tourism	0–25	0–10	75–100	Variable/site specific		

Note: AD% = adaptation; EC% = economic growth; EV% = environment; MI% = mitigation; and SO% = social development.

Source: Based on experience from CPEIR and financing framework work in South-East and South Asia over the past four years.

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