Malawi First Phase CPEIR

Final Report

31 December 2018

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CLIMATE SCRUTINY

Malawi First Phase CPEIR

Final Report

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Acknowledgements

This CPEIR was conducted by a team of three consultants. Hannock Kumwenda led the activities in Malawi. Zoe Driscoll conducted visits in the three districts over a period of two weeks. Kit Nicholson was team leader and spent three days in Lilongwe, participating in a Training of Trainers (ToT) event. The team are grateful for the opportunity to have met and consulted DEA, UNDP, and staff from other stakeholders during both visits. We are also grateful for the cooperation received from staff in MFEPD and NLGFC in providing the data on expenditure that was available. We are especially grateful to the officials from the three districts for sharing their expertise with the activities of the Local Councils and of projects in their districts, and for participating in the ToT event and offering their advice about the methods that are likely to be of practical use in Malawi.

Abbreviations

ABS Adaptation Benefit Share
AE Approved Estimate
AER Annual Economic Report
AG Accountant General
AfDB African Development Bank
AFS Approved Financial Statement
AMP Aid Management Platform
APEA Africa's Public Expenditure on Adaptation
ARC Annual Report on CC
ARCiB Annual Report on CC in the Budget
ASWAP Agriculture Sector-Wide Approach
BADEA Arab Bank for Economic Development in Africa
CC Climate Change
CCA Climate Change Adaptation
CCAPS CC and African Political Stability
CCFF CC Financing Framework
CCIA CC Impact Appraisal
CDF Constituency Development Fund
CPEIR Climate Public Expenditure and Institutional Review
DAD Debt and Aid Department
DDC District Development Committee
DDP District Development Plan
DEA Department of Environmental Affairs
DfID Department for International Development (UK)
DORC Donor Orientation Report on CC
DRM Disaster Reduction and Management
EU European Union
FISP Farm Input Subsidy Programme
FY Financial Year (2015/16 = FY16)
GBI Green Belt Initiative
GCF Green Climate Fund
GDP Gross Domestic Product
IFAD International Fund for Agricultural Development
IFMIS Integrated Financial Management Information System
IGFTF Intergovernmental Fiscal Transfer Formula
IGFTS Intergovernmental Fiscal Transfer System
IMDSA Institute for Management Development and Social Analysis
IMF International Monetary Fund
IPCC Intergovernmental Panel on CC
JPER Joint Public Expenditure Review on Malawi's Environment, CC & DRM Sectors
L&D Loss and Damage
LC Local Council
LDF Local Development Fund
LUANAR Lilongwe University of Agriculture and Natural Resources
MAFS Ministry of Agricultural and Food Security
MASAF Malawi Social Action Fund
MDA Ministry, Department and Agency
MFEPD Ministry of Finance, Economic Planning and Development
MFERP Malawi Floods Emergency Recovery Project
MGDS Malawi Growth and Development Strategy
MIWD Ministry of Irrigation and Water Development
MLGDP Ministry of Local Government Decentralisation Planning
MLHUD Ministry of Lands, Housing & Urban Development
MLVT Ministry of Labour & Vocational Training
MNREM Ministry of Natural Resources, Energy & Mining
MoF Ministry of Finance
MTEF Medium Term Expenditure Framework
MWK Malawi Kwacha
NCCIP National CC Investment Plan
NCCMP National CC Management Policy
NDC Nationally Determined Contributions
NLGFC National Local Government Finance Committee
NPDM National Profile of Disasters in Malawi
ODA Official Development Assistance
OPC Office of the President and Cabinet
PER Public Expenditure Review
PFM Public Finance Management
PRRO Protracted Relief & Recovery Operations
PSRU Public Sector Reforms Unit
RE Revised Estimate
RPWP Recovery Public Works Programme (WB)
SRAG Strategy for Reducing the Adaptation Gap
SREX IPCC Special Report on Extreme Events
ToT Training of Trainers
UNDP United Nations Development Programme
WB World Bank

Summary

Background. Malawi has achieved good economic growth in recent years, but this growth is strongly affected by droughts, floods and more variable rainfall. There is still some uncertainty about the evidence on changes in the frequency of droughts and floods, but the Special Report on Extreme Events of the Intergovernmental Panel on Climate Change suggests that the frequency may increase gradually to double the current level by 2050. Evidence on flood frequency in Malawi over the last 30 years supports this projection. The current level of economic impact will increase in line with the frequency of extreme events, unless adaptation measures are put in place. In addition, there is growing evidence that the effects of heat stress on labour productivity will become very significant and will affect most activities, to varying degrees.

Objective. The immediate objectives of this Climate Public Expenditure and Institutional Review (CPEIR) are: a) to describe recent public expenditure on adapting to climate change (CC), with a particular interest on the district level; and b) to assess the effectiveness of this expenditure. The wider objective is to help improve the integration of CC adaptation into planning and budgeting and so to reduce the impact of CC.

Climate Change Expenditure

Data Sources. The CPEIR covers four main sources of expenditure data: a) public expenditure budgets, as recorded in the Approved Financial Statement (AFS); b) the Aid Management Platform (AMP) data on donor disbursement on projects, which partly overlaps with the AFS; c) data on District Council expenditure from the NLGFC; and d) evidence collected by the CPEIR from three pilot districts (Nkhata Bay, Ntcheu and Zomba). This data covers nine years. The AFS Revised Estimates for 2016/17 gave total public expenditure of MWK 1137bn, of which MWK 249bn was foreign funded projects. In the same year, the AMP expenditure was MWK 338bn, suggesting that at least MWK 89bn of donor project funding is not included in the AFS. Local Council budgets totalled MWK 109.8bn in the AFS, but only MWK 51.1bn in the data provided by NLGFC.

This first phase CPEIR was unable to analyse data on actual expenditure through the budget because the Integrated Financial Management Information System (IFMIS) does not record actual expenditure by cost centre (ie at an administrative or function level below that of the Ministry). In theory, it may be possible to manually inspect each individual payment request and classify it according to cost centre, but this would be a huge task and the government does not have the resources to do this on a regular basis. Furthermore, the accuracy of the analysis would depend on the practices adopted by each ministry for recording expenditure by cost centre. A second phase CPEIR should be considered which devotes sufficient resources to do this analysis for a few pilot ministries, with a view to exploring what would be required to make adjustments to IFMIS to allow this to happen annually.

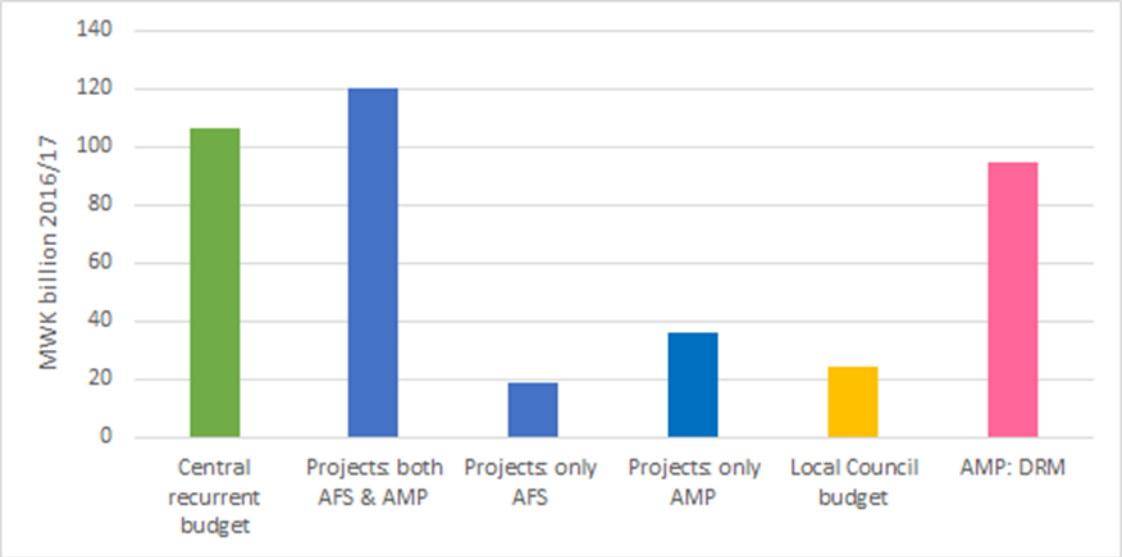
Definition and Classification. The definition of climate expenditure is challenging because most climate expenditure is primarily development expenditure that also makes a contribution to adaptation and/or mitigation. The routine development benefits are usually much larger than the adaptation benefits, partly because adaptation benefits grow gradually, in line with CC.

There are four main international methods for classifying climate expenditure and the CPEIR uses all of these. Firstly, the type or sector of expenditure is defined using the sub-programmes in Malawi's programme budget, as listed in the AFS. The CPEIR groups the sub-programmes into 'sectors' to help with presenting results. Secondly, expenditure is classified according to whether it makes a contribution to adaptation and/or mitigation. Thirdly, the relative importance of adaptation and/or

mitigation compared to development is defined for each programme, using a full-high-mid-low scale. Unlike some CPEIRs, this study does not assign percentages to these categories, to avoid confusion with the fourth method. Fourthly, an 'Adaptation Benefit Share' is estimated and reflects the adaptation and/or mitigation benefits expressed as a % of total benefits.

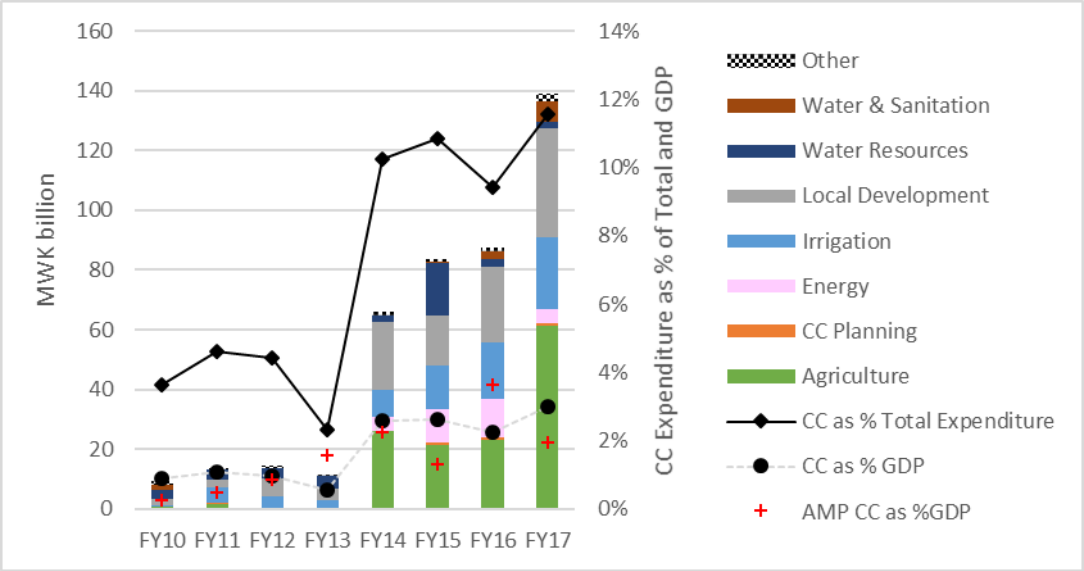
Climate Expenditure by Data Source. Figure 1 shows the results of the classification for 2016/17 and illustrates the scope and consistency of the data sources. The figures refer to the budgets in the AFS and for Local Councils, plus disbursement on the projects in AMP that are not included in AFS, separated into DRM and other projects. The mixing of budgets (for AFS) and actual disbursement (for AMP) means the results should be treated only as estimates, but they reflect the best data available to the CPEIR. This suggests that MWK 388bn of public spending made a contribution to adaptation and/or mitigation. Of this, MWK 258bn was recorded in the AFS, which included MWK 94bn of recurrent expenditure by central government, MWK 24bn of spending by Local Councils and MWK 139bn of development expenditure. There was a further MWK 36bn was foreign funded development projects in the AMP, but not in the AFS, and MWK 94bn for DRM that is in the AMP, but not in the budget.

Figure 1 Total Climate Expenditure



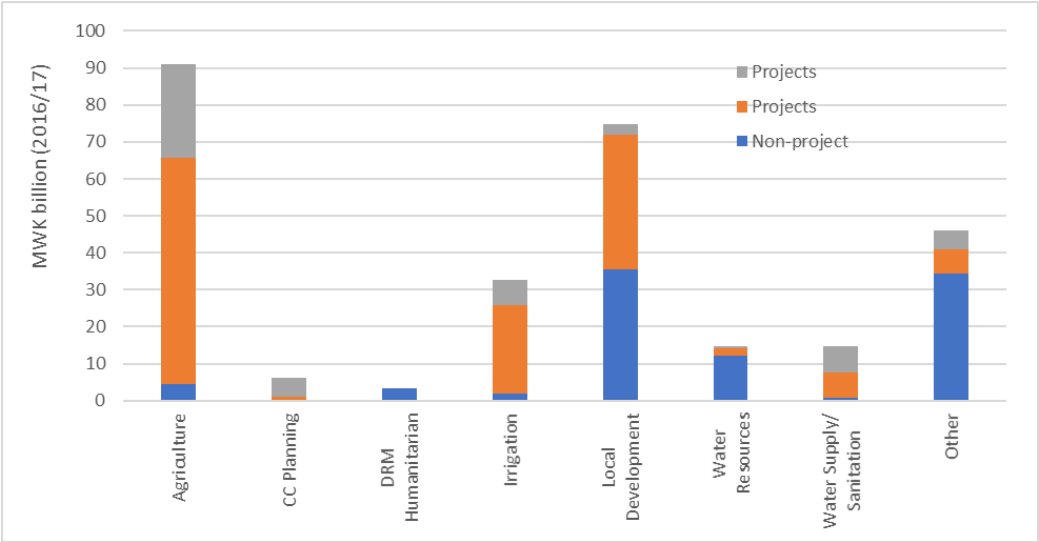
Trends in Development Expenditure Related to CC. It is not possible to repeat the analysis in Figure 1 for the years prior to 2016/17 because it requires data on the programme budget, which was only introduced in the AFS in 2016/17. However, an indication of the trend in climate expenditure over the last nine years is given in Figure 2. This is based on the development expenditure in the AFS, which accounts for about one third of total climate expenditure. The figure shows that there was a large jump in expenditure in 2013/14, which was caused largely by the spending on the World Bank loans for the Agriculture Sector Wide Approach and the Malawi Social Action Fund. When expressed as a percentage of total public expenditure, climate spending jumped from between 2% and 5% before 2013/14 to between 9% and 12% afterwards. The continuing higher levels are caused largely by projects in agriculture, irrigation and local development.

Figure 2 Climate Development Expenditure in the AFS (2009/10 to 2016/17)



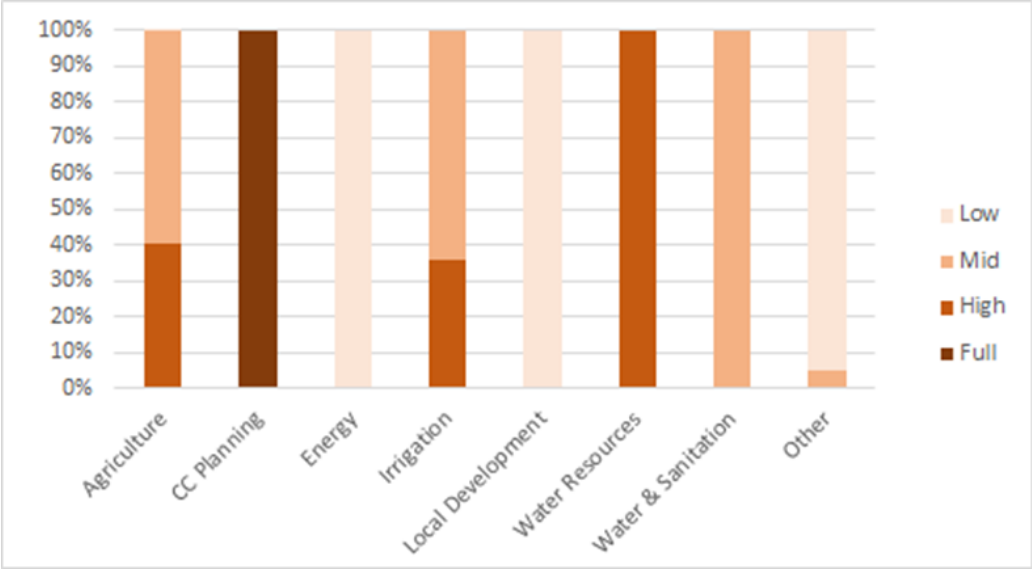
Climate Expenditure by Sector. The sectoral breakdown of climate expenditure is described in Figure 3. This includes all the sources described in Figure 1 and so can only show data for 2016/17, when the programme budget was added to the AFS. Figure 3 shows that agriculture and local development are the most important sectors. DRM was also important in 2016/17, though this varies greatly from year to year. Irrigation and water resources are significant, but have a smaller share. The 'other' category includes health, income diversification and urban development, plus some smaller sectors. Labour is also included in other expenditure because of the recent global evidence that the impact of heat stress on labour productivity could be very important.

Figure 3 Sectoral Breakdown of Climate Expenditure (2016/17)



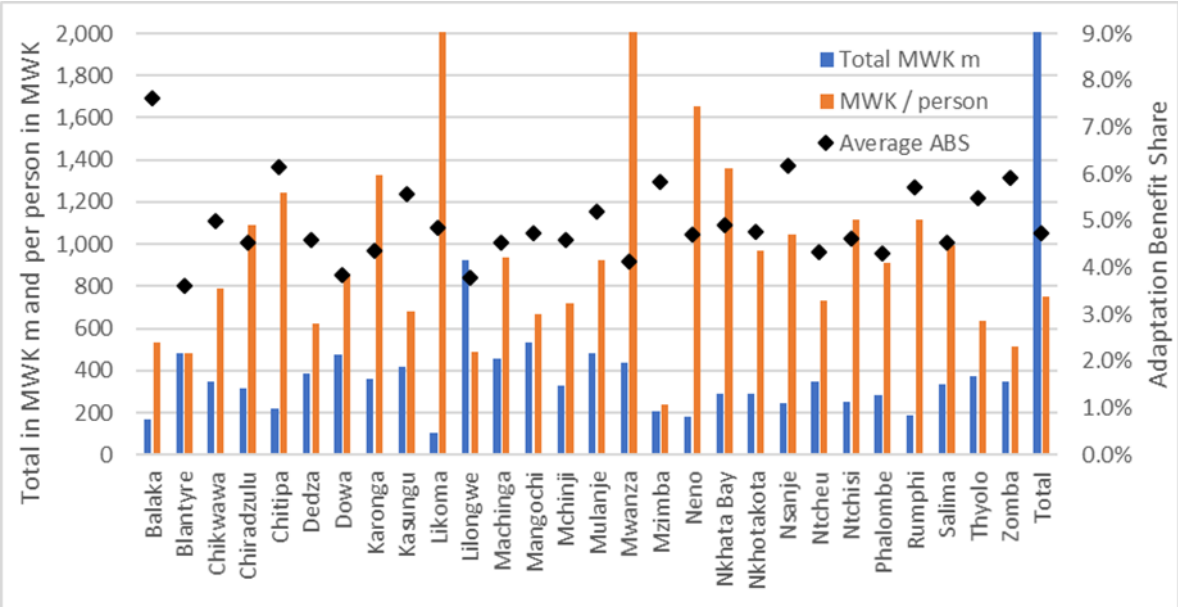
Climate Change Relevance. Figure 4 shows the relative importance of CC for expenditure in different sectors, usually referred to in CPEIRs as the degree of CC relevance. Fully CC relevant expenditure is limited to a few projects involved in CC planning (including research, awareness and capacity building). High, mid and low climate expenditure all receive significant shares of the total climate expenditure, with mid relevance expenditure having the highest share.

Figure 4 Degree of Climate Relevance of Climate Expenditure (AFS only, FY17)



Districts. There was substantial variation between districts in the level of climate expenditure, both when expressed in total levels and per capita, as shown in Figure 5. Likoma and Mwanza had high climate expenditure per capita, at least partly because of their small populations. There are eight districts with per capita climate expenditure of 1000 to 2000 MWK/person (ie Neno, Nkhata Bay, Karonga, Chitipa, Chiradzulu, Ntchisi, Rumphi and Nsanje), most of which have populations of between 100,000 and 300,000.

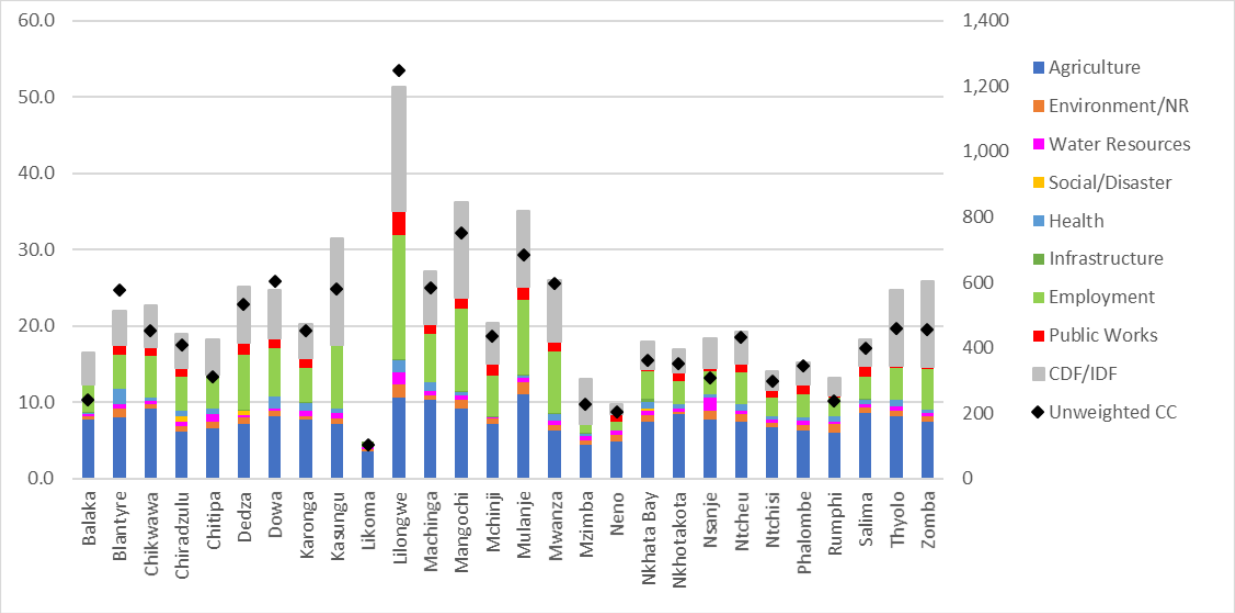
Figure 5 Climate Expenditure by District (2016/17)



Note: expenditure per capita for Likoma is 9743 and Mwanza is 4601 MWK/person

The sectoral composition of climate expenditure in Local District budgets is presented in Figure 6. The figure presents weighted climate expenditure, after multiplying the total expenditure by the ABS. This gives a more informative picture of the sectoral balance of climate expenditure because, if the weight is not applied, the patterns are dominated by a few sectors that have high spending but make only small contributions to adaptation and/or mitigation (eg health and public works). The most important sectors are agriculture, employment and the Constituency and Infrastructure Development Funds.

Figure 6 CC Weighted Expenditure (MWK m, 2016/17 Local Council Budget)



Source: NLGFC Local Council Budgets, with CPEIR classification

The Effectiveness of Adaptation Expenditure

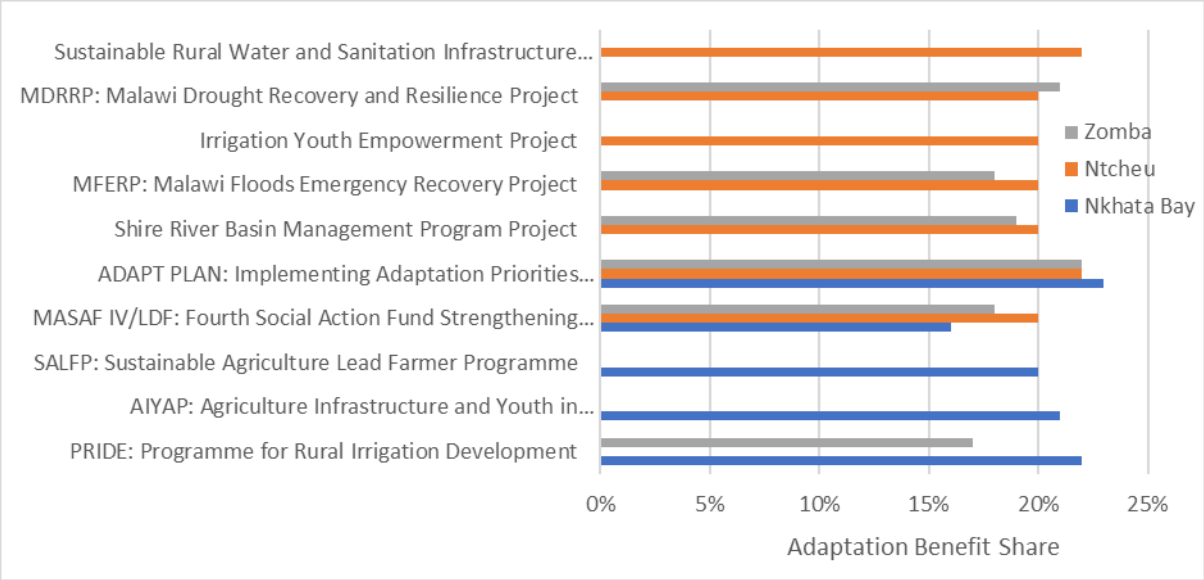
Adaptation benefits are defined as the increase in benefits when CC is taken into account. They estimate the reduction in economic impact caused by the expenditure. The Adaptation Benefit Share (ABS) was assessed using international norms based on case studies using structured benefits analysis, similar to the techniques used in the pilot districts for this CPEIR, but sometimes including more quantitative evidence. These norms usually result in an ABS of 20% to 30% for high CC relevance expenditure, 10% to 20% for mid relevance and less than 10% for low relevance. The average increase in benefits was 11% for all climate expenditure in the budget and 13% for development expenditure in the budget. Climate expenditure funded by donors was concentrated more in the high relevance types of project, with an average ABS of 26%. Local Council budgets were more difficult to classify because of the predominance of development funds with varied functions.

The CPEIR held discussions with government officials in the three districts of Nkhata Bay, Ntcheu and Zomba. These discussions focused on understanding the implications of CC for a number of selected projects. The assessment used a qualitative method which involves: a) identifying the main benefits of each programme; b) assessing the relative importance of each benefit; and c) assessing the extent to which each of the benefits would increase (or decrease) when CC is taken into account. The primary objective of this work is to promote discussion and understanding on how CC affects projects and to build consensus on the relative importance of different programmes in delivering adaptation. The methodology has been used internationally for assessing the Adaptation Benefit Share and provides an objective basis for claiming additional adaptation benefits for development expenditure. It also provides an evidence base for estimating the Adaptation Gap, defining a comprehensive strategy for closing the gap and reporting on progress in reducing the gap.

Figure 7 shows the results of the pilot discussions. Most adaptation programmes respond to drought, flood and rainfall variability which are already a major development concern and simply becomes gradually more important with CC. If the frequency of these current climate risks gradually doubles by 2050, then it is impossible for the ABS to be more than 33%, unless the programme focuses on research, awareness and capacity that is devoted exclusively to CC and has no value without CC. The programmes selected were all delivering important contributions to adaptation and

so it is not surprising that they all had relatively high ABS scores of between 16% to 23%. As the assessment is qualitative and includes some subjectivity, there is a range of at least 5% in the results that would be obtained by different analysts, so the exact figure achieved is not critical. However, the value of the technique is in improving understanding about how CC affects programmes and taking account of programmes that make lower contributions to adaptation (eg broad income diversification programmes or health programmes), as well as the most obvious adaptation programmes.

Figure 7 Relative Importance of Adaptation Compared to Total Benefits



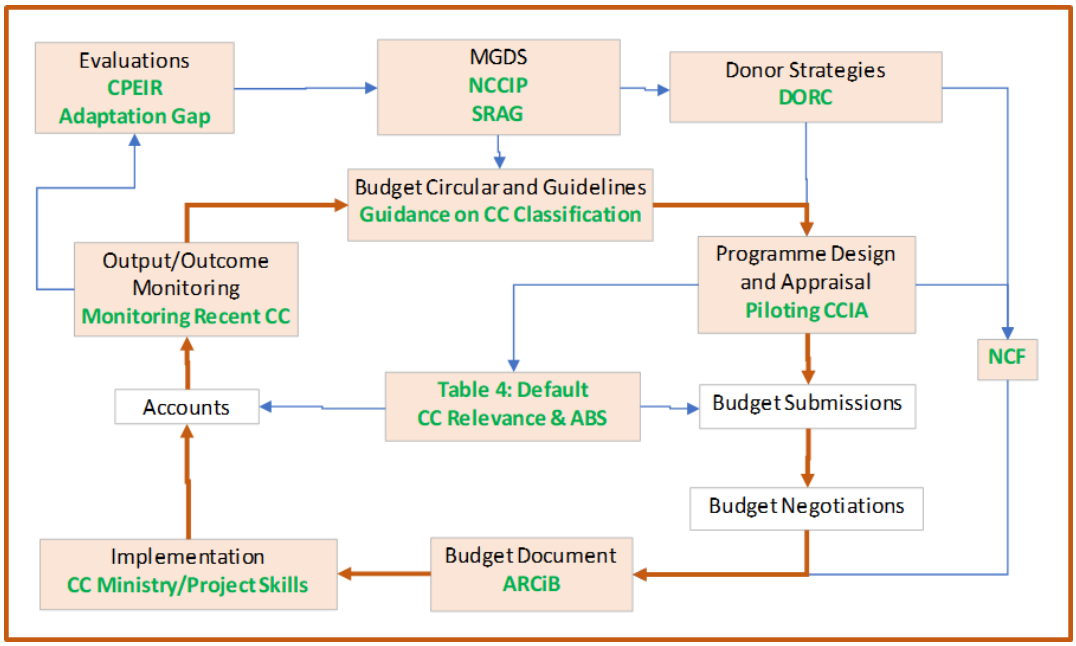
Conclusions and Recommendations

The CPEIR draws some tentative conclusions and recommendations, which are summarised in the Mainstreaming Action Plan in Table 1. Recommendations are shown in bold italics.

Perceptions about CC and Mainstreaming. There is still only patchy understanding about the nature and causes of CC in Malawi. ***DEA should lead a programme that expands current activities to promote awareness about the nature of CC. This should include more officials in the key line ministries that are already partly exposed to CC. It should also be extended to more line ministries and to more districts.***

There are a wide variety of views in Malawi about the appropriate strategic response to CC. In most countries, the adaptation response is based around a 'mainstreaming' approach in which most CC expenditure is integrated into development planning and budgeting. Figure 8 illustrates how CC can be integrated into the planning and budget cycle. Acronyms are explained in the subsequent paragraphs of this summary. In Malawi, there are signs that some officials and donors believe that most CC expenditure should be managed separately from development expenditure. This would be counterproductive and ***DEA should lead a programme to develop consensus around a Malawian approach to mainstreaming. This could include an updating of the National CC Management Plan.***

Figure 8 CPEIR Recommendations for Mainstreaming CC into Planning and Budgeting



Classification. There is no standard international approach for classifying climate expenditure. This CPEIR uses the two main approaches in use internationally, both of which recognise that it is essential to register the differing degrees of contribution to adaptation and/or mitigation. One method is based on the objectives of the expenditure and the other on the benefits. ***The government should adopt a standard approach for Malawi that refers to international practice and aims to accommodate the complementary advantages of the various approaches, whilst remaining simple to use.***

Classification of climate expenditure across the budget should ideally be guided by default scores for cost centres in the budget, which would build ownership in the cost centres. ***However, cost centre budgets are not made public and so it will be necessary to use the sub-programmes presented in Annex 7 of the AFS. DEA should coordinate the default scoring of sub-programmes, in collaboration with MFEPD.***

The CC Budget. Based on the classification methods used in this CPEIR, the climate budget jumped dramatically in 2013/14, and has remained at between 9% and 12% of total public expenditure. ***Sustaining these levels should be a strategic objective of CC policy in Malawi.***

Actual CC Expenditure. This First Phase CPEIR had no access to actual domestic expenditure. Whilst this is not unusual in CPEIRs in other countries, it is of particular concern in Malawi, because of significant variations between actual and budget expenditure related to management practices, uncertainties about donor financed projects and the relatively high inflation and devaluation in some years. Nevertheless, the budget does reflect the priority given to CC compared to other budget priorities. ***The integration of CC into planning and budgeting should work with whatever data is available, which currently means working with budget data, rather than actual expenditure. A Second Phase CPEIR should be undertaken that selects several pilot ministries and manually inspects payment requests for one year to explore the difference between actual and budget expenditure and to help assess whether it is possible to reform IFMIS to do this analysis automatically.***

Effectiveness of CC Expenditure. This CPEIR piloted a qualitative Climate Change Impact Appraisal (CCIA) tool in Nkhata Bay, Ntcheu and Zomba, which aims to bring objectivity to classification and

facilitate climate sensitive appraisal. The tool was successful in structuring debate and building consensus but was relatively complicated and may be most useful for a limited number of the more important adaptation programmes. ***For general expenditure classification, Malawi can use default CC relevance and ABS scores, associated with sub-programmes in the budget. For larger high priority climate expenditure programmes, ministries and donors should be encouraged to use CCIA, with an appropriate level of detail.***

In addition to offering some consistency to expenditure classification, CCIA also provides a method integrating CC into appraisal in order to assess how CC influences expenditure effectiveness. ***For the programmes that make strong contributions to adaptation and/or mitigation, it will be useful to conduct a qualitative assessment of ABS, as piloted in this CPEIR. If programmes are subject to cost benefit analysis, then this can include adaptation and/or mitigation benefits. Donors should be encouraged to estimate the ABS for all projects, and to use quantitative methods for projects that already include cost benefit analysis. DEA should develop guidelines on the methods and on the types of expenditure for which the different methods are appropriate.***

Strategic Coordination. The National CC Investment Plan (NCCIP) provides the most coherent strategy guiding CC activity in Malawi. ***The NCCIP should be updated with more effective information about the current levels of climate expenditure in different sectors and, hence, the extent to which these need to increase to deliver the NCCIP. The process of updating the NCCIP will help to consolidate a standard national approach to classification.***

One of the most powerful ways of integrating CC into planning and budgeting is to produce parallel budget tables that set out the contribution to adaptation and mitigation of the budget being negotiated. This requires the budget software to include a climate tag or score. This is not practical for Malawi at present. ***Instead, DEA should produce an Annual Report on CC in the Budget (ARCiB) after the budget is finalised and has become public, which would inform the following year's budget. Line ministries and districts should also produce brief ARCs.***

The CPEIR suggests that the current Adaptation Gap is between 80% and 90%. ***A Strategy for Reducing the Adaptation Gap (SRAG) should be produced, including targets for: a) improving adaptation effectiveness of existing expenditure; b) increasing domestically funded climate expenditure; c) increasing donor funded climate expenditure; and d) increasing private climate expenditure.*** The SRAG could also include targets for reducing the gap, for example, to 70% in the short term, 60% in the mid-term and 50% in the long term.

A standard Malawian approach to classification will make it possible to introduce systematic monitoring of climate expenditure. ***DEA should build on the standard approaches to classification to report on expenditure trends as part of Malawi's commitments to measurement, reporting and verification under the Paris Agreement. DEA should also provide clearer guidance to international partners, possibly in the form of a Donor Orientation Report on CC (DORC).***

At present, there are no incentives in the planning system for local councils to prioritise climate expenditure, beyond their own interest in reducing loss and damage. ***MFEPD should consider the opportunities for introducing an indicator related to CC in the new fiscal transfer formula, similar to the recent Indian initiative to include forest area in their fiscal transfer formula. This would provide incentives to districts and also highlight the need for developing agreed methods for defining vulnerability to CC.***

International experience with National Climate Funds (NCFs) is mixed, with early success in some countries (eg Rwanda) and major challenges in others (eg Bangladesh). From a mainstreaming perspective, using an NCF to fund actions that might feature in development funding is likely to be counterproductive, undermining the integrity of the national planning and budgeting system and

distracting scarce planning skills. ***If the government wishes to establish an NCF it would be wise for it to focus on dedicated CC activities (eg studies, information services and capacity building).***

Table 1 CC Mainstreaming Action Plan

Calendar Year	2019				2020				2021			
Budget Year	**FY19**		**FY20**				**FY21**				**Long Term**	**Cost US$K**
	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ		
Budget Preparation												
Line Ministries (with technical support from DEA)												
Qualitative CCIA for classification and design			pilot LMs				all LMs					50
Reference to CCIA/classification in budget submissions												0
Hybrid CCIA for project, with donors							pilots					30
CCIA and ARC scaled to all LMs												30
Annual Report on CC (ARC-LM)				pilot LMs				all LMs				30
District Local Councils (with technical support from DEA)												
Qualitative CCIA for programmes/projects			pilot LCs				all LCs					50
Reference to CCIA/classification in budget submissions												0
Annual Report on CC (ARC-LC)				pilot LCs				all LCs				25
DEA (with international support)												
National Guide on CC Classification	prepare		pilot LMs/LCs				all LMs/LCs					15
National Guide on CCIA	prepare		pilot LMs/LCs				all LMs/LCs					20
Coordination of the CCMAP												50
Awareness programme on CC science and mainstreaming												10
Annual Report on CC in the Budget (ARCiB)			pilot									50
Update of the NCCMP and NCCIP												30
Second Phase CPEIR for selected LMs												30
Strategy for Reducing the Adaptation Gap (SRAG)												50
Guidance document for private sector adaptation												10
Paris Agreement NDC Progress Report												50
MEFDP (with technical support from DEA)												
Instructions to LMs/LCs on classifying cost centres												10
Instructions to LMs/LCs on CCIA in budget proposals												10
CC chapter in new MGDS												5
Budget guidelines refer to Malawi's CC risks & response												5
Donor Orientation Report on CC (DORC)												30
Donors (with guidance from MEFDP and DEA)												
Donors select a few key CC projects for quantitative CCIA												0
Colour Code											Total	590
Classification and analysis of expenditure												
Effectiveness and CCIA												
Strategic Coordination												

There are a number of issues that affect climate expenditure that are also longstanding development issues and are likely to be solved only with the full weight of development policy. These include: issues related to slow disbursement; donor coordination; and monitoring indicators for systems of programme or output budgeting. ***It is not practical for climate policy to take the lead in resolving these issues, although policy on climate expenditure can support wider national initiatives.***

1 Introduction

1.1 Background and Objectives

Background. This report describes the findings of a Climate Public Expenditure and Institutional Review (CPEIR) conducted in September and October 2018 to understand the current contribution of public expenditure to climate change (CC) adaptation and mitigation. The CPEIR was funded and managed by UNDP, under the ADAPT PLAN project. The CPEIR included a review of available expenditure data as well as consultation in Nkhata Bay, Ntcheu and Zomba, focusing on the way in which key adaptation programmes contribute to reducing the impact of CC.

CPEIRs were initiated in 2011 in response to global interest in measuring progress in responding to CC (Bird, Beloe et al. 2012, Fozzard and Steele 2014, UNDP 2015). The first CPEIRs were conducted in Asia and they have now been done it at least 30 countries, including several in Africa (eg Ethiopia, Ghana, Kenya, Morocco, Mozambique, Rwanda, Tanzania and Uganda). There have also been several reviews in Africa of public expenditure on environment that also cover CC (eg Botswana, Mali, Mauritania as well as a study in Malawi in 2014).

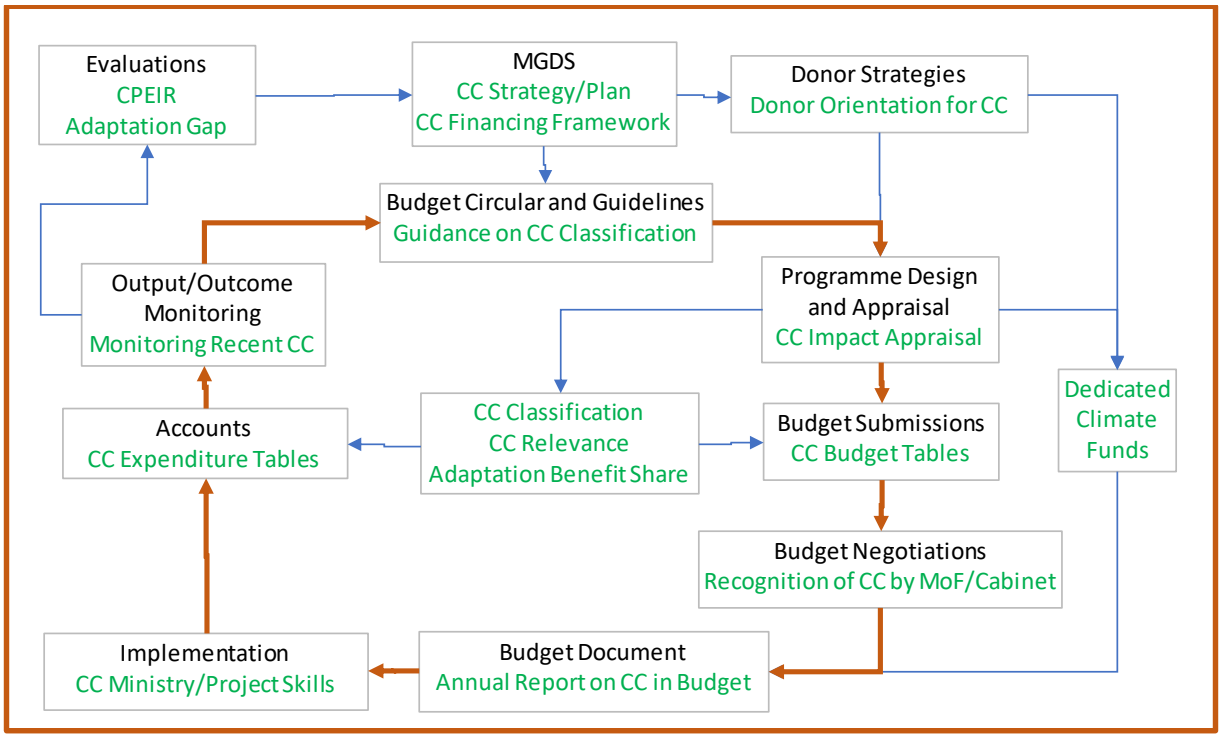
CPEIRs have generally been used to help integrate CC into existing planning and budgeting practices and institutions, a process that is sometimes called 'mainstreaming CC' (UNDP 2015). The key features of mainstreaming are presented in Figure 9. Thus, the primary focus of a CPEIR is normally to understand how routine development planning can most effectively be adjusted to take account of CC. CPEIRs may also identify a relatively small number of actions that are motivated solely, or primarily, by CC, but the large majority of the expenditure reviewed is primarily development expenditure that becomes more valuable as a result of CC.

CPEIRs have been complimented in many programmes by programmes of work on CC Impact Appraisal (CCIA) which provides more objectivity to the understanding of the importance of benefits from mitigation (ie slowing CC) and adaptation (ie adjusting to CC, as it happens) (UNDP 2011, Climate Scrutiny 2017, UNDP and ACT forthcoming).

CPEIRs review past expenditure, usually over the last three or four years for which data is available. In some countries, they have been also been complemented in recent years by CC Financing Frameworks (CCFFs), which provide forward scenarios for climate expenditure and review the options for managing this expenditure (eg in Bangladesh, Cambodia, Nepal and several Indian States) (UNDP 2017). CCFFs also, typically, compare the expected impact of adaptation spending with the potential economic impact of CC to estimate an 'Adaptation Gap' . In 2017, a study on Africa's Public Expenditure on Adaptation (APEA) applied CCFF methods using easily publicly available data and estimated the Adaptation Gap for 42 countries. The APEA study suggested that Malawi already has levels of expenditure on adaptation that are above the African average, which helps ensure that the Adaptation Gap is not as high as might be expected, given the vulnerability of the country.

In theory, CPEIRs and CCFFs provide the basis for defining and monitoring progress on Nationally Determined Contributions (NDCs) to the Paris Agreement. CPEIRs provide the baseline of current expenditure on CC and CCFFs provide a method for integrating NDCs into future planning in a way that allows expenditure to be monitored in an objective manner. CCFFs also require work on the effectiveness of CC expenditure, which highlights the importance of integrating CC into programme design, appraisal and evaluation.

Figure 9 Key Features of Mainstreaming CC into Planning and Budgeting



Notes: the orange arrows are used for the main budget cycle and the blue arrows for other planning tasks

Objectives. The primary objective of the CPEIR is to improve understanding about recent public expenditure on adapting to CC by providing evidence on the scale of this expenditure and on how it is managed, with a particular interest on the district level.

Fulfilling this objective should make it possible to address several secondary objectives, including:

- introducing methods that help government officials to assess the potential implications of CC for their activities and how their activities might need to be adapted to protect the expected benefits from CC risks
- introducing adjustments to the planning and budgeting system that create incentives and/or requirements for budget units to report on the implications of CC for their activities and any justification for changes in budget, to reflect extra adaptation benefits or proofing needs
- defining methods that donors are requested to follow in designing and managing projects to ensure that CC is taken into account
- assisting budget units to raise additional finance, either from development sources or from climate finance
- assisting in defining options for a comprehensive strategy for closing the Adaptation Gap

1.2 Scope of the CPEIR

Institutions. The CPEIR includes a review of institutions and policies affecting climate expenditure, in chapter 2. The assessment of current institutional arrangements for managing Malawi's response to CC has been based on a desk review of available literature, combined with some discussions with stakeholders, at central and district level[1]. This consultation was guided by a checklist of key issues

[1] Stakeholders include: Department of Climate Change/Environmental Affairs (DEA), Public Sector Reforms Unit (PSRU) – Office of the President and Cabinet (OPC), Ministry of Local Government – Decentralisation Planning (MLGDP); Accountant General (AG) – IFMIS Department; Debt and Aid Department (DAD) – Ministry of Finance (MoF); National Local Government Finance Committee (NLGFC); NGOs and private sector entities.

presented in Annex 6. The consultation was limited by the short time for the fieldwork and by constraints in the availability of key staff in some districts.

Expenditure. The analysis of public expenditure covers both central government expenditure and district level expenditure, with a particular emphasis on the expenditure in three pilot districts. The analysis has attempted to cover both budget estimates and actual expenditure, but the Integrated Financial Management Information System (IFMIS) does not record actual expenditure by cost centre and it would require very extensive work manually investigating the individual payments approved by line ministries to make this data available. The sources of data are described in section 1.4. Whilst the lack of data on actual expenditure by cost centre limited the analysis, relying on easily available public data does have the advantage that the analysis can easily be replicated every year, without requiring time-consuming analysis of the raw data.

Classification. The methods used for defining and classifying climate expenditure are described in section 1.5, with further details in Annex 1. The CPEIR has used all the main methods that are typically used in CPEIR work, in order to explore their appropriateness for different purposes in Malawi.

Tax Expenditure and Maladaptation. In theory, it would have been interesting to include tax expenditure (ie policies that reduce tax revenue) and maladaptation (ie expenditure that increases Loss and Damage (L&D) from CC). However, in common with many CPEIRs, this has not been done because of lack of time and expertise. Both tax expenditure and maladaptation require specialist knowledge of the policy context and, because they are often politically sensitive, they also require an investment in political engagement to ensure that government departments are interested in the results.

Effectiveness. The Terms of Reference (ToR) require an analysis of effectiveness. This is addressed in qualitative terms in the 2014 Joint Public Expenditure Review on Malawi's Environment, CC & DRM Sectors (JPER). This CPEIR has not had the resources to undertake primary research on the effectiveness of CC expenditure in Malawi. However, it is reasonable to assume that the relative implications of CC for the effectiveness of CC expenditure will be similar to that in other countries for which the SREX 'doubling rule of thumb' applies (see section 1.3). This CPEIR therefore draws on the international work that has been done on the implications of CC for adaptation benefits, using the Adaptation Benefit Share (ABS) as a unifying concept.

Disbursement, Inputs and Monitoring. The ToR required an analysis of disbursement rates, input mix and monitoring. These issues primarily affect routine development and will only be resolved from the perspective of wider development, with the full political and administrative backing that comes from a national initiative. This CPEIR explores whether there is anything unique about CC expenditure that requires a special approach to resolving these issues, beyond the approach used as part of reforms to promote development.

Adaptation and Mitigation. The focus of this CPEIR is on adaptation. However, in classifying expenditure items, the CPEIR does also identify potential contributions to mitigation. In most cases, this involves energy and forestry programmes, which contribute both to adaptation and to mitigation.

1.3 The Impact of Climate Change in Malawi

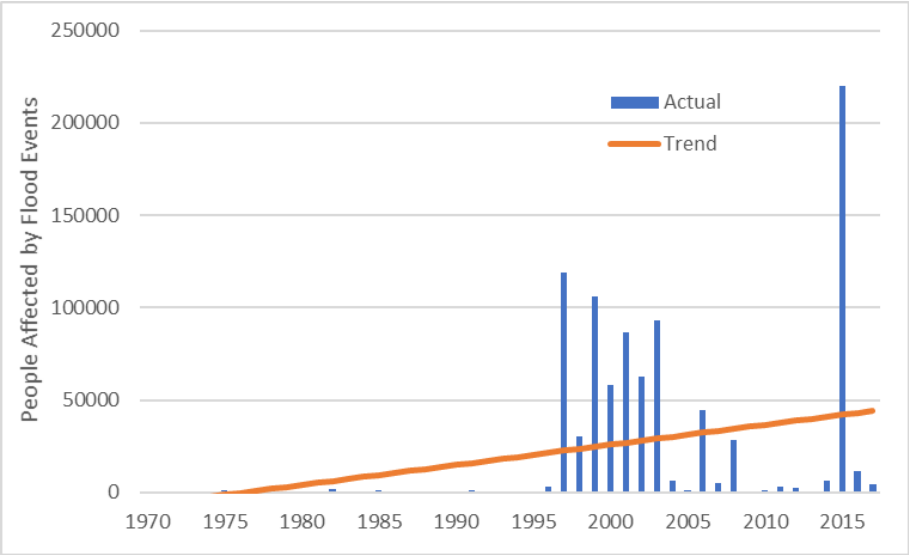
The starting point of any assessment of CC policy and expenditure is an understanding of the nature and severity of the risks associated with CC, to which the policies and expenditures respond (Climate

Scrutiny 2017). In Malawi, the main risks are associated with changes in the frequency of floods, droughts and rainfall variability, including periods of intense rainfall, unseasonal rainfall patterns and extended dry spells in the wet season. There are four main impact pathways: natural resource productivity, damage to assets, labour productivity and indirect effects on investment.

Frequency of Floods, Droughts and Rainfall Variability. Most public adaptation expenditure in Malawi aims to reduce the economic impact of floods, droughts and rainfall variability. This expenditure is already providing valuable benefits by reducing the impact of existing events and its effectiveness is directly proportional to the frequency of floods, drought and erratic rainfall events. The IPCC Special Report on Extreme Events (SREX) estimated that, for the Southern and Eastern Africa regions, the frequency of floods will increase by between 50% and 90% by mid-Century, depending on the climate scenario assumed (IPCC 2012)[2]. There is likely to be relatively little change in total annual rainfall, so the concentration of rainfall into extreme events causing floods is likely to be matched by a similar increase in frequency of droughts and dry spells.

For relatively small areas, such as Malawi, the downscaling of Global Circulation Models is still considered to have wide margins of error and climate scientists often recommend that projections refer at least as much to the trends of recent decades, as an indicator of likely future trends. Figure 10 shows the number of people affected by flood events, using the National Profile of Disasters in Malawi (NPDM), managed by the Department of Disaster Management Affairs (DoDMA). The figure shows that the trend over the last 45 years is for an average increase of 1083 people affected each year. In the 33 years from 1984 to 2017, the trend average went up by 35749, from 8435 to 44184. If that same average annual increase was maintained to 2050, it would go up from 44184 to 79933, an increase of 81%.

Figure 10 Number of People Affected by Flood Events in Malawi (1970-2017)



Source: (Nicholson 2018)

Both the SREX modelling and the NPDM data suggest that the frequency of floods, droughts and rainfall variability will roughly double by 2050. This can be used as a rough rule of thumb for planning purposes: any programme that delivers benefits that are directly related to the frequency of floods, droughts or rainfall variability will become twice as valuable by 2050. The increase in frequency will double only gradually over the period to 2050 and, assuming that the doubling

[2] The SREX report presented the results for a flood with a 20 year return period, but suggested that, as a first estimate, it was reasonable to assume that similar increases in frequency would be experienced by floods of all sizes.

happens in a linear fashion, the average increase in frequency over the whole period will therefore be 50%.

Natural Resource Productivity. Production is affected by heat, flood, drought and rainfall variability. Reduced natural resource productivity affects crop yields in particular, but also livestock, forestry and fisheries. Crop yields are typically expected to be 10% to 15% lower in 2050 in countries where staple crops are close to temperature tolerance thresholds. Higher temperatures also lead to increased losses in power (from cooling and distribution losses), although this will not be a major concern in Malawi. These losses typically account for a quarter to a third of all economic impact.

Damage to Assets. Damage to assets is mainly caused by floods and more intense rainfall. This affects roads and buildings, including housing, offices and factories. According to Malawi's NDC, the floods in 2015 affected 15 out of 28 districts, displaced 230,000 people and cost USD 829m (equivalent to 15% of GDP) in loss, damage and reconstruction. Soil erosion can also be seen as damage to an asset, but is rarely valued. The damage to assets does not involve a direct loss of GDP, but reduces the production potential of the economy. It typically accounts for a quarter of all economic impact.

Labour Productivity. Labour productivity is affected by heat stress. Recent international research suggests that, in tropical countries, this is likely to cause between a third and a half of all losses. Labour productivity may decline by about 10% by 2050 in sectors that require heavy manual work, like agriculture and construction. Other industrial sectors relying on lighter manual work are likely to experience a reduction in labour productivity of about 5% and the impact is significant even for office workers, where productivity can decline by about 1%. These issues have not yet been addressed in Malawi, but there are a range of adaptation actions that can reduce the potential impact, most of which require collaboration between public and private sectors.

Reduced Investment. There is also an indirect growth effect whereby losses of GDP in one year lead to lower investment and, hence, lower capital and productive capacity in future years. The compound effects of reduced investment are complex, but typically increase the combined economic impact of the three main pathways by about a third.

Total Economic Impact. The average GDP growth rate of Malawi in recent years has been 4.3%. If this is maintained until 2050, real GDP will be four times higher. However, the economy is highly vulnerable to weather patterns, especially in the agriculture sector, which accounts for 28% of GDP. Floods in 2015 and droughts in 2016 were the main reason for lower GDP growth rates of 3.3% and 2.7% respectively, before good harvests in 2017 provided a recovery and delivered growth of 5.1%. Climate variability is thus already providing a major constraint to economic growth in Malawi.

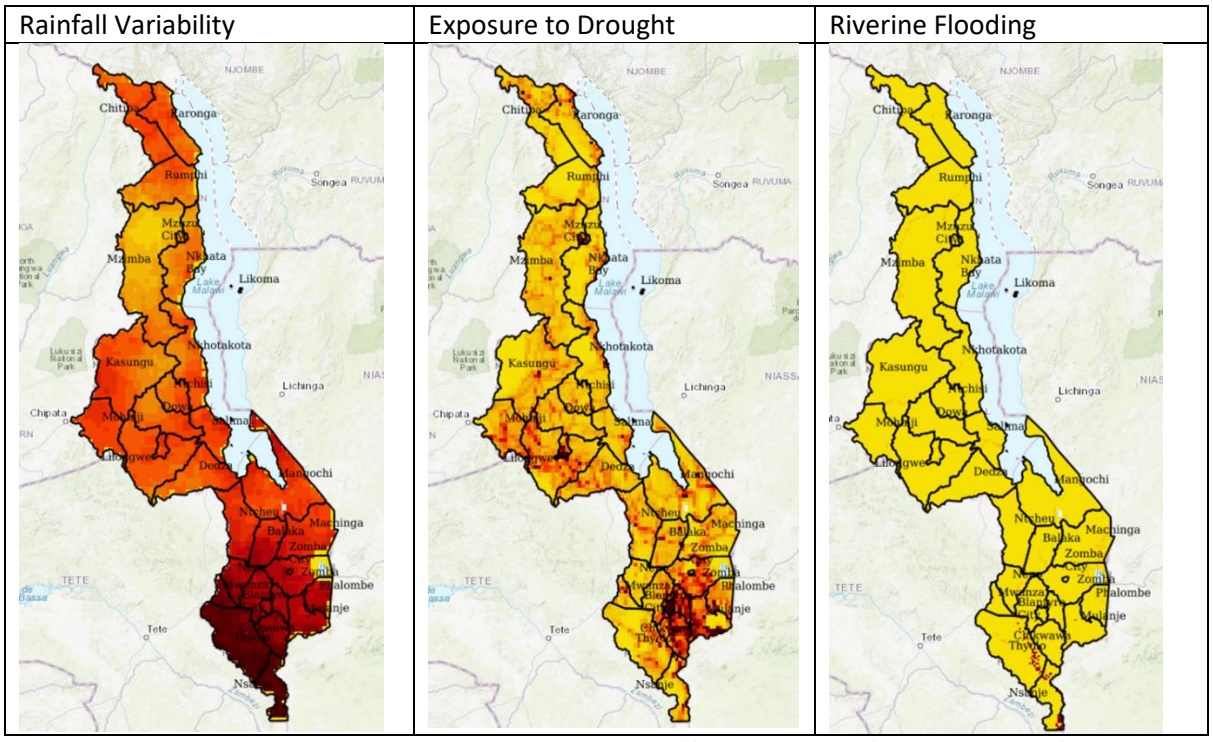
Recent global work on modelling the potential economic impact of CC in vulnerable countries, such as Malawi, suggest that absolute GDP in 2050 will be 10% to 20% lower as a result of CC, if there is no adaptation. This suggests that GDP may only be 3.2 to 3.6 times higher in 2050, rather than 4 times higher. The loss of GDP in 2050 is likely to be over MKW 1800bn (nearly USD 2.5bn). The losses from CC will increase gradually and the accumulated loss over the next 33 years is likely to be about MKW 30,000bn. These recent estimates are significantly higher than in some models (eg (Arndt, Schlosser et al. 2014), largely because they take into consideration the impact of heat on labour productivity and the indirect effects on GDP of lower investment rates.

CC also has major implications for government finances. Macroeconomic stability requires fiscal deficits to be maintained at manageable levels, but it also requires continuity of public expenditure programming in the face of large occasional demands from humanitarian support during bad years.

The APEA report in 2017 covered most African countries and assessed the evidence on potential loss and damage, current and planned public expenditure and the effectiveness of that expenditure in reducing loss and damage. Malawi was found to have vulnerability levels that are typical for African countries, with an expected loss of GDP of about 3%, if moving directly from current to 2050 climate scenarios. When growth effects are taken into account, the level of absolute GDP in 2050, is likely to be 10% to 20% below what would be expected without CC. Public expenditure on adaptation in Malawi is relatively high, compared to other African countries. The APEA analysis suggested that the Adaptation Gap in Malawi is similar to that in Zambia, but slightly better than Mozambique and Tanzania. This CPEIR will review this analysis with more detailed evidence on climate expenditure.

Regional Variation in Impact. There is significant spatial variation in vulnerability to CC. The Regional Centre for Mapping of Resources for Development (RCMRD) has mapped drought and flood risk for Malawi, as shown in the figure below. The graphs show that rainfall variability and river flooding risks are concentrated in the south, whilst exposure to drought is spread across the whole country, with a focus in the south and centre.

Figure 11 Exposure to Climate Risks



Source: RCMRD Vulnerability Mapping Tool (http://tools.rcmrd.org/vulnerabilitytool/)

The World Bank funded a study conducted by RMSI on the vulnerability and disaster risk assessment study of Malawi in 2009 and reaching conclusions that are similar to those on the RCMRD modelling (RMSI 2009). Drought hazards were focused in the southern districts, but there were also significant areas of vulnerability in the centre and north, notably in Mchinji and Nkhata Bay. However, the geographical distribution of the impact of serious drought was more mixed and was higher in central districts than in the south or the north. For floods, while major riverine flood damage was focused in the lower Shire, there was much wider exposure to the sort of flooding that occurred in 2015, which affected 15 of the 28 districts in Malawi. The potential damage caused by flooding is highest in the more densely population areas, notably around Lilongwe and Blantyre.

1.4 Public Finance Sources

Public Finance Classification Systems. Public finance data is usually presented in one of four types of classification. Table 2 describes the classification system in Malawi, which includes all four types.

- 'Economic' classification divides expenditure into wages, operational expenditure, interest, development etc.
- 'Administrative' classification is by ministry, department, agency or other organisational budget unit. In the administrative classification is based on Malawi, the administrative classification is based on cost centres, which may refer to the department or to lower organisational units, such as divisions.
- 'Functional' classification relates to expenditure that has similar objectives. This often follows the Classification of Functions of Government (COFOG) as defined in the IMF Government Financial System (GFS) (IMF 2014). It may also follow a set of national planning objectives. In Malawi, the functional classification follows the Malawi Growth and Development Strategy (MGDS) output.
- 'Programme' classification is specified as a set of programmes defined in a national programme budget system, if this exists. In some cases, it may be the same as the functional classification.

Table 2 Malawi Budget Classification System

Budget and Expenditure Classification	CoAs Segments	Category Description	Length
Administrative Classification	Administrative with 14 digits	Vote	3
		Budget type	1
		Cost centre	3
		Division	2
		Donor	2
		project	3
Program Classification	Program with 5 digits	Program	2
		Sub-program	2
		Sub-sub-program	1
Functional (MGDS Output)	MGDS Output with 6 digits	Objective (sub-sub-theme)	2
		Outputs	2
		Activities	2
Economic (GFS)	Economic (GFS) with 7 digits	Chapter	1
		Sub-chapter	2
		Item	2
		Sub-item	2

Source: https://www.slideshare.net/IFPRIMaSSP/ecama-mwabutwa-2

The economic classification is of no value to a CPEIR, since all the different chapters and items that contribute to one output have the same contribution to adaptation and/or mitigation. The other three items can all be used for identifying and classifying climate expenditure, provided the data is available at a sufficient level of detail. In Malawi's system this means by cost centre[3] for administrative classification, by sub-programme for programme classification and by outputs for the functional classification. There are advantages in using the administrative classification, if the data is available, because classification can be done initially by the department or division and then checked

[3] In Malawi, 'cost centres' include the main departments of the ministry, plus the 28 district offices, the HQ and any institutions that have their own budgets, like research stations.

by a quality control body and debated, if necessary. This promotes ownership and awareness in the cost centre.

Data Sources. This CPEIR makes use of three main sources of data on public CC expenditure.

- Central government expenditure is reported in the annual Approved Financial Statement (AFS), which has a breakdown of budget expenditure by economic classification (AFS Annex 1), by organisational classification (Annex 2) and, for the first time in 2018, by functional or programme classification (Annex 7). There is also a breakdown by project (Annex 6).
- The Annual Economic Report (AER) includes a table of functional expenditure that provides both the approved budget and the out-turn of actual expenditure.
- The contribution of international partners is recorded in the Aid Management Platform (AMP)[4]. The AMP includes a column which identifies the districts in which a project is active, but not the allocation of the project budget to districts[5].
- Local government expenditure is recorded by the National Local Government Finance Committee (NLGFC). The local council budget database provides detailed data by District/City council. This includes data on programme classification, although the programme coding system is different to that used in the AFS.

There is no source of data that presents actual expenditure according to administrative level below the level of vote. There were 58 votes in the FY17 budget and these mainly referred to ministries or agencies, plus selected departments that require operational independence. Only 15 votes were related to CC, including 10 line ministries, the Greenbelt Authority, two funds (the Road Fund Authority and the Local Development Fund) and two votes for local councils (the transfer to the councils and the National Local Government Finance Committee). The 2018 AER included 44 functions, some of which combined budget votes and others split votes into programmes. Less than 10 of the functions in the AER table involved some activities that were related to CC and all of these functions also involved many activities that are not related to CC.

The limited level of detail is because the accounting system requires ministries to submit payment requests to the Accountant Generals Department (AGD) which checks only whether the requests keep the entire ministry within their budget vote for the month. IFMIS records reflect this and are limited to the level of vote. No check is done by AGD at the level of the cost centre and ministries adopt their own practices for ensuring that cost centres are spending according to their budgets. Thus, virement[6] between cost centres within a ministry is not controlled by the AGD or MFEDP. The nature of record keeping on actual expenditure by cost centre is likely to be different for each ministry and anecdotal evidence suggests that the extent to which ministries attempt to adhere to cost centre budgets is varied. This requires further investigation, which is proposed in a second-phase CPEIR.

1.5 Classification of Climate Expenditure

The classification of climate expenditure is complicated by the fact that most adaptation and/or mitigation happens as a secondary benefit from development expenditure and the relative

[4] http://amp.finance.gov.mw/

[5] A project to geocode AMP data was undertaken by AidData (at William and Mary in Virginia) and Climate Change and African Political Stability (CCAPS, at Texas University - https://www.strausscenter.org/aid.html). The dataset from the venture is freely downloadable on the internet. The method of classification is slightly different to that used in this CPEIR, but the results are similar. The analysis registers the districts in which projects are recorded as being active, but does not allocate funds to districts.

[6] 'Virement' is the public finance term referring to the practice of switching budget from one item to another during the financial year.

importance of adaptation and/or mitigation, compared to development, varies greatly. Some development expenditure makes a clear contribution to adaptation (eg most agriculture, irrigation and water programmes) and this is always included in a CPEIR. But there are some expenditure programmes where development is much more important than adaptation (eg roads, urban development and primary health), but which still make an important contribution to adaptation. If these latter programmes are included, they can dominate the patterns of climate expenditure, which can be misleading. If they are excluded, then their important benefits can fall outside the scope of the incentives to take CC into account, which the CPEIR aims to help introduce into the planning and budgeting system. To address this challenge, most CPEIRs use a system of classification that assesses the relative importance of adaptation and/or mitigation, compared with development, for each item of expenditure.

This CPEIR classifies expenditure in four complementary ways to facilitate comparison with other CPEIRs and to illustrate the full potential value of the CC expenditure analysis. These methods are as follows and are described in more detail in Annex 1.

- A ***Yes/No Screening*** is undertaken to identify the expenditure which makes some contribution to adaptation and/or mitigation. This includes a classification according to whether the contribution is for adaptation, mitigation or both.
- The extent to which CC features in the objectives of the expenditure is captured by the ***CC relevance***, which may be high (explicit primary objective), mid (explicit secondary or important implicit objective) or low (implicit and of minor significance). A few programmes may be full relevance if they are expected to have no value without CC.
- The benefits approach is based on the ***Adaptation Benefit Share*** (ABS), which is based on the relative importance of adaptation benefits and development benefits.
- Finally, a ***typology*** describes the broad sectors (eg agriculture, irrigation, water resources…), which are used to present clearer trends in the sectoral breakdown of CC expenditure. It also identifies the expenditure that contributes primarily to research and to capacity.

It may seem confusing and time-consuming to use the four methods of classification. However, a first basic classification relies on default values and the time-consuming element is in collecting data, not in classifying the data. A second level of classification involved more detailed analysis of the activities and benefits supported by the expenditure and this does involve more time, but the time involved is not increased by using several different methods of classification. The table below shows how the various methods relate to each other.

Table 3 Relationship Between Three Complementary Classifications

Yes/no Screening	Objectives Approach[1]	Benefits Approach[2]	Typology
Screening and whether programmes contribute to adaptation or mitigation or both	Full relevance	100%	CPEIR sectors research, capacity
	High relevance	20-33%	
	Mid relevance	10-20%	
	Low relevance	0-10%	
Non-CC programmes	No relevance	0%	None

[1] The relative importance of adaptation in the objectives of the programme
[2] The proportion of the total benefits that are associated with adaptation (ie with the reduction in L&D) rather than with development

Classification of Sub-Programmes and Projects. The classification of sub-programmes relies on Table 4 below, which lists all the sub-programmes in the Malawi programme budget, as listed in AFS Annex 7, that could contribute to adaptation and/or mitigation. Each sub-programme is classified according to: a) whether it contributes to adaptation, mitigation or both; b) whether it is full-high-mid-low relevance; and c) the ABS.

Table 4 Climate Relevance of Programmes in Malawi Programme Budget

Programme and Sub-Programme	Type	Obje-ctive (FHML)	Ben-efits (ABS)	CPEIR Sector	Comments/CC Implications
04. Water Resources					
03. Water Resources	Adapt	H	25%	Water	Needs response to variable rainfall
04. Water Supply and Sanitation	Adapt	M	15%	Watsan	Needs response to variable rainfall
13. Energy Generation and Supply					
07. Energy Generation and Supply	Both	L	5%	Energy	Reduce emissions, more reliable supplies
18. Labour Employment & Manpower					
10. Occupational Safety, Health & Welfare	Adapt	L	5%	Labour	Policies to avoid loss of labour productivity
45. Local Government Services					
01. Decentralization Services	Adapt	L	5%	Local	Mainly health/education some agric
48. Housing Management					
02. Buildings management	Adapt	L	1%	Infra	Energy efficiency and flood protection
03. Housing management	Adapt	L	1%	Infra	Energy efficiency and flood protection
49. Agricultural Productivity & Risk Mngt.					
01. Agricultural Diversification	Adapt	H	20%	Agric	Adapt to flood/drought/rain variability
02. Agribusiness Development	Adapt	L	5%	Agric	Adapt to flood/drought/rain variability
03. Extension Services	Adapt	M	10%	Agric	Adapt to flood/drought/rain variability
04. Technology Generation	Adapt	L	5%	Agric	Adapt to flood/drought/rain variability
06. Sustainable Mngt of Agric. Land (& 96.02)	Adapt	H	25%	Agric	Adapt to flood/drought/rain variability
07. Crops Development	Adapt	M	10%	Agric	Adapt to flood/drought/rain variability
50. Livestock and Fisheries Production					
01. Livestock Production	Adapt	M	10%	Agric	Adapt to heat/flood/drought/rain variability
02. Fisheries Production	Adapt	L	5%	Agric	Adapt to heat/flood/drought/rain variability
51. Delegated Functions Management					
02. Disaster Preparedness, Relief & Rehab.	Adapt	H	33%	DRM	Response to flood & drought
56. Planning and Development					
04. Coordination of Social Protection Policy	Adapt	L	1%	Social	Response to risks with no adaptation options
60. Local Development					
01. Socio Economic Infrastructure	Adapt	L	1%	Infra	Energy efficiency and flood protection
02. Livelihoods and Skills Development	Adapt	M	10%	Income	Diverse incomes reduce vulnerability
03. Productive Public Works	Adapt	L	5%	Income	Diverse incomes reduce vulnerability
04. Social Cash Transfer (& 71.05)	Adapt	L	5%	Social	Response to risks with no adaptation options
62. Road Infrastructure Management					
01. Road Upgrading	Adapt				Included in some CPEIR, but not in Malawi
02. Road Rehabilitation	Adapt				Included in some CPEIR, but not in Malawi
65. Primary Health Care					
01. Preventive Services	Adapt	L	2%	Health	Response to increase diarrhoea, malaria etc
03. Curative Services	Adapt	L	1%	Health	Response to increase diarrhoea, malaria etc
68. National Level Health Programs					
01. Preventive Services	Adapt	L	2%	Health	Some relevance for diarrhoea, malaria etc
02. Health Promotion Services	Adapt	L	2%	Health	Some relevance for diarrhoea, malaria etc
70. Community and Child Development					
02. Community Mobilization & Capacity	Capacity	L	2%	Local	Options for integrating CC into local planning
03. Resilience, Livelihoods & Nutrition	Adapt	L	5%	Local	Diverse incomes reduce vulnerability
05. Community-Based Rehabilitation	Adapt	L	2%	Local	Proofing from floods & income diversification
06. Vocational Skills Training & Rehab.	Adapt	L	2%	Local	Diverse incomes reduce vulnerability
92. Environment & Climate Change Mngt.					
01. Forestry Management	Both	H	15%	Enviro	Mitigation, ecosystem vulnerability, incomes
02. Environmental Management	Adapt	M	10%	Enviro	Protect against ecosystem vulnerability
03. Climate Change Management	Capacity	F	100%	CC	Capacity to manage CC
04. Meteorological Services	Research	H	25%	CC	Research to support CC management
05. Biodiversity Conservation & Protection	Adapt	L	5%	Enviro	Protect against ecosystem vulnerability
06. Research, Development & Extension	Adapt	L	5%	Enviro	Protect against ecosystem vulnerability
96. Sustainable Rural Development					
01. Rural Development	Adapt	M	15%	Local	Mixed, including income diversification
03. Irrigation Development (& 96.04)	Adapt	H	25%	Irrig	Protection against rainfall variability/drought
05. Local Authority Capacity Enhancement	Capacity	M	10%	Local	Options for integrating CC into local planning
06. Agro-Processing & Value Chain	Adapt	L	5%	Agric	Diverse incomes reduce vulnerability
09. Greenbelt Initiative	Adapt	H	25%	Irrig	Mainly irrigation
10. Roads Fund Management	Adapt				Included in some CPEIR, but not in Malawi

The classifications of sub-programmes aims to be consistent with the approach defined in Annex 1 and with international practice. Some adjustments are made, based on local circumstances in Malawi and the insight gained from the CPEIR work in Nkhata Bay, Ntcheu and Zomba. The classifications are made without detailed knowledge of the balance of activities in each sub-programme and the ministries responsible for the programmes should be encouraged to propose and substantiate changes to the classifications, using the methods described in this CPEIR.

Projects are then classified first by aligning them to the most appropriate sub-programme and using the classification of the sub-programme as a default value. The particular nature of each project is then considered, to judge whether the default score should be adjusted up or down.

The approach taken for each programme is summarised in Table 5 below.

Table 5 Classification of Sub-Programmes and Projects

Sub-Programmes	Projects
Water (programme 04). Water resources (04.03) has high CC relevance because it is central to the strategic management of water resources that are strongly related to rainfall variability. Water supply and sanitation (04.04) is mid CC relevance because most of the services are routine development and are only affected by CC to a limited degree, during seasons where floods and water availability are a serious constraint.	Water resources projects are mostly high CC relevance. Water supply and sanitation projects are more varied: if they focus on more reliable services, they have a higher-than-default score; if they are largely unaffected by more variable rainfall, they have a lower-than-default score.
Energy (13) is low CC relevance since most of the expenditure is simply to improve supplies and there is only a small element that contributes to reliability of supply and mitigation (eg through reduced use of fuelwood or reduces distribution losses).	Projects that focus on renewable energy and energy efficiency may have higher-than-default scores, although these projects also give high routine economic development benefits.
Labour Policy. Occupational welfare (18.10) is included with low CC relevance. It is unlikely that CC is yet taken into account, but the impact of heat stress on labour productivity will become important and this is included as a 'placeholder' to encourage MLVT to consider CC in future.	Any future project that addresses heat stress and labour productivity in future will have between high and full CC relevance, with a high ABS.
Buildings and housing management (48.02 and 48.03) are included with low relevance because some building design work may include elements of energy efficiency and flood protection.	No projects were found that deal with design standards for resilience and energy efficiency. They would have high CC relevance and ABS.
Agriculture (49) has six sub-programmes all of which are CC relevant, to varying degrees. Diversification (49.01) and Sustainable Land Management (49.06) are high CC relevance because their benefits are directly related to vulnerability. Crop development (49.07) and extension (49.03) are mid CC relevance because they focus first on development but become somewhat more valuable as CC happens. The other sub-programmes are low CC relevance because adaptation is a minor side-benefit.	Agriculture projects frequently cover a range of sub-programmes and need to be scored by taking an average of the range of activities, taking into account the relative importance of each activity, if evidence is available on that.

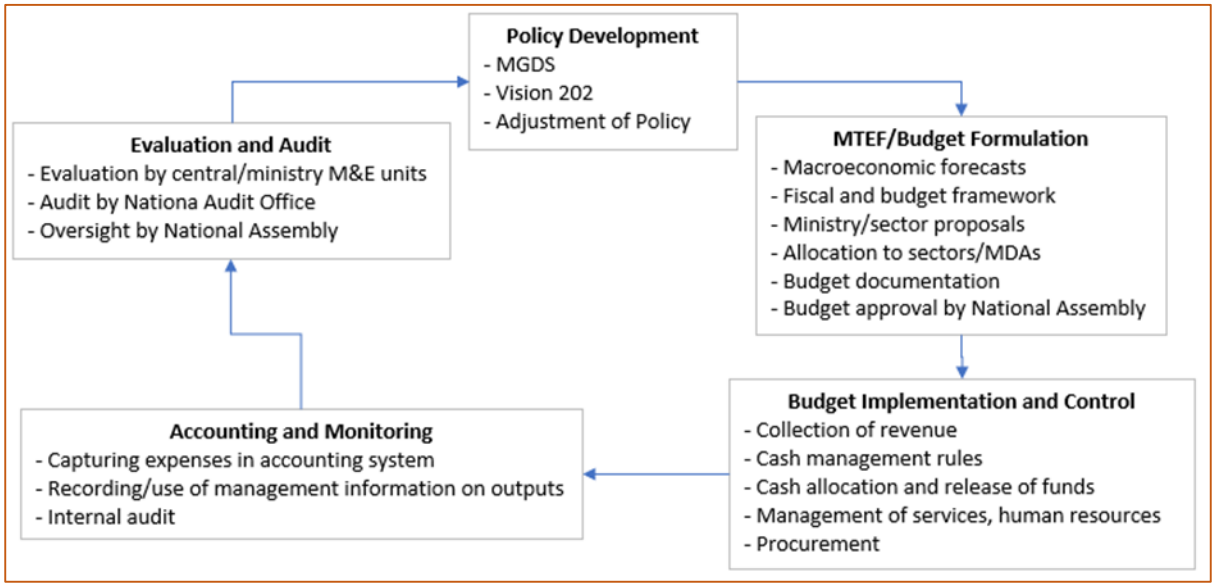
Sub-Programmes	Projects
Livestock and fisheries (50) are somewhat affected by CC. Livestock is considered mid CC relevance because livestock make a strong contribution to household coping strategies. Fisheries are classified as only low CC relevance because the science of how CC will affect fisheries productivity is still not well understood.	Projects that focus specifically on resilience in livestock or fisheries will have higher-than-default scores.
Disaster Preparedness (51.02), or DRM, is included with a high CC relevance because it becomes more important as the frequency of disasters increases with CC. It could be argued that only the prevention element of DRM is true adaptation. However, it will never be possible to prevent all disasters and humanitarian relief should feature in any comprehensive adaptation strategy.	DRM projects will all normally be high CC relevance unless they specifically address the implications of CC for DRM, in which case they will be full CC relevance.
Social Protection Policy (56.04) and Local Development (60) are included because they become more valuable as vulnerability increases and so should feature in adaptation strategy. Most sub-programmes in these programmes have low CC relevance, except livelihoods and skills, which contribute to income diversification and resilience.	This sub-programme covers a variety of different types of projects and the degree of CC relevance depends mainly on whether there is any focus on improving resilience.
Road Infrastructure (62) is in Table 4 because it can be included in CPEIRs, where flood proofing is important and/or roads play a role in flood management. In Malawi, roads were not included because there is little evidence of whether they make a contribution to adaptation.	Any roads projects that address proofing or flood management should be included, but should have a low CC relevance because the dominant benefits will be development.
Health (65 and 68) is included only for preventative, curative and promotion services. These have a low CC relevance because only a small part of the expenditure relates to climate sensitives diseases.	Projects that refer specifically to diarrhoea, malaria and malnutrition may be given a higher-than-default score.
Four ***Community Development (70)*** sub-programmes are included because they contribute to income diversification and local planning capacity. They are all low CC relevance.	Projects that focus on resilience will have higher-than-default scores, depending on the degree of focus.
Environment (92) contains six sub-programmes with varying degrees of CC relevance. CC management is full CC relevance because it is of no development value if CC does not happen. Forestry and meteorological services are high CC relevance and environmental management is mid CC relevance because it addresses ecosystem resilience. Biodiversity and extension are low CC relevance because they are not strongly affected by CC, in general.	Any programmes that specifically address resilience to CC will have higher-than-default scores. The resilience should be specifically to CC and not just to other pressures, like population pressure.
Rural Development (96) has six sub-programmes that have CC relevance. Irrigation and GBI have high CC relevance. Rural development and local authority capacity are mid CC relevance, because they contain a range of activities. Agro-processing contributes to diversification but is mainly development and is low CC relevance.	Income diversification projects that target households that are vulnerable to CC will have higher-than-default scores.

2 Institutions and Policies

2.1 Planning and Budgeting

The Planning Cycle. Malawi's systems of public finance management (PFM) follow conventional practices, as described in Figure 12. Medium term perspectives are provided mainly by the Malawi Growth and Development Strategy (MGDS) and annual budgets are required to be consistent with the MGDS. The MGDS specifies that Sector Working Groups (SWGs) will be formed involving all budget units participating in the sector and that SWGs will prepare Joint Sector Strategies and implementation plans with annual costs. SWGs will also coordinate the monitoring and evaluation of the MGDS. There is also a Vision 2020, which was prepared in 1998 and still provides long term guidance. Finally, a five-year Public Sector Investment Programme (PSIP) is prepared in line with the MGDS and this is updated every year.

Figure 12 Malawi's Planning and Budgeting Cycle



Source: (MFEPD 2016)

The Budget Process. Expenditure is governed by an annual budget process as described in Table 6 (eg (MFEPD 2016).

Table 6 The Annual Budget Process

29/30 Mar	Guidelines circulated, budget briefing workshops
31 Mar	Circulation of indicative ceilings for each Ministry, Department and Agency (MDA), provided as part of the Medium Term Expenditure Framework (MTEF)
14 Apr	MDAs submit proposals, sticking to the PSIP as far as possible
4-15 Apr	Budget hearing meetings, to guide MDAs
20 Apr	Final MTEF ceilings
25 Apr	Final budget submissions, must be consistent with the final MTEF ceilings
6 May	Budget consolidation finalised
30 Jun	Parliamentary approval and publication of the various budget documents, including the Approved Financial Statement (AFS)
1 Jul	Start of Fiscal Year

Source: (MFEPD 2016)

CC in the Budget Guidelines. The FY17 Budget Guidelines include a section that requires all MDAs to make 'prudent use of natural resources, environmental management and climate resilience'(MFEPD 2016). This is to be done by complying with environment and CC mainstreaming guidelines in the following areas:

a) all activities that use environment and natural resources should include awareness and monitoring to ensure sustainable use
b) environment and natural resources should be used to help alleviate poverty whilst also encouraging communities to appreciate their environment better
c) MDAs should budget for Environmental Impact Assessment (EIA) and for Focal Points for Environment and CC
d) MDAs must fulfil their roles in monitoring sustainability indicators in the MGDS

The FY17 Budget Guidelines also emphasise that the decentralisation policy will continue to be pursued and that MDAs are encouraged to devolve functions to Local Councils. Selected pilot districts will, for the first time, be required to fund the salaries of local staff responsible for devolved activities that remain under the technical supervision of MDAs. In FY18, it was anticipated that all districts would be required to fund all salaries of developed activities.

Administrative Budget. The budget is approved by administrative vote. There were 58 votes in the FY17 budget and these mainly referred to ministries or agencies, plus selected departments that require operational independence. Only 15 votes were related to CC, including 10 line ministries, the Greenbelt Authority, two funds (the Road Fund Authority and the Local Development Fund) and two votes for local councils (the transfer to the councils and the National Local Government Finance Committee).

Within each vote, the budget approves line items that define economic categories (eg salaries, pensions, interest, operation and maintenance etc). In general, the breakdown by economic category is of no interest to the classification of CC expenditure because all the line items that contribute to one administrative or functional category have the same degree of CC relevance.

Programme Budget. Malawi has been piloting a programme based budget (PBB) for several years, in which MDAs are required to state their mission, objectives, outcomes and outputs, as well as recording their achievements. This became mandatory for all MDAs in the 2016/17 (FY17) budget. The programme information is then consolidated into standard programmes, which are presented in AFS Annex 7. There were 336 programmes in the AFS for FY18, of which 40 have some relevance to CC. This provides a significantly more precise basis for classifying CC expenditure than the 15 votes that have some relevance to CC in the administrative budget.

2.2 Public Accounts

The budget is implemented under the supervision of the Accountant General's Department (AGD) which manages accounts for each budget vote (ie ministries, agencies and selected departments that require operational independence). In 2017, only 15 of the 58 votes were involved in adaptation and/or mitigation (see section 1.4). This level of detail is insufficient to estimate CC expenditure because many of the votes include a wide range of activities that have varying degrees of CC relevance and may have no CC relevance at all.

Provided that sufficient revenue has been collected, MFEDP authorises funds to be transferred each month into the accounts managed by AGD for each vote in line with the budget of the vote. Line ministries, and other votes, submit payment request forms to AGD, approved by officials in the line department. AGD checks that the requests are consistent with the budget, to ensure that no line items (ie no economic categories) are over budget for the ministry. Salaries are managed separately

through an automated payroll system. Once the request form has been checked and approved, a Payment Voucher is issued by AGD, which enables government suppliers to be paid. Analysis of the expenditure by cost centre is at the discretion of the ministry and is not required by MFEDP or the AGD.

AGD produces quarterly reports of expenditure, which include details on the expenditure on each month of the quarter, along with an estimate of the disbursement rate, which can be used to assess the extent to which actual expenditure is in line with budget estimates. These reports are at the level of budget vote and are not therefore useful for estimating actual CC expenditure. In addition, they are only made public after a considerable delay. The latest version on the MFEDP website is for the first quarter of FY16.

Reforms. A recent review of public sector reforms was produced by the Office of the President and Cabinet (OPC) (OPC 2018). The review identifies eight policy priority areas, of which the first two are relevant to the CPEIR. *Public service management reforms* deal with human resources and capacity, including the strengthening of the sort of inter-ministerial collaboration that is required for managing CC policy. *Decentralisation reforms* aim to accelerate the devolution process and improve the efficiency and effectiveness of local government.

The government and World Bank produced a Public Expenditure Review (PER) in 2013 which reviewed the efficiency of public expenditure and the reforms in public finance management (PFM). The PER suggests that, by 2013, the PFM reforms were assessed as being uneven, with some success in strengthening the macroeconomic framework and cash planning, but continuing challenges associated with shifting from incremental budgets and with integrating development partner programmes into planning and budgeting. These challenges are not unusual in African countries and it is more challenging to integrate CC into the budget when the routine development planning and budgeting is limited strategic orientation and when foreign funding is not well coordinated. The PER recommends improvements in the planning and budgeting processes and calendar and these provide opportunities to integrate CC into the process.

The latest IMF Economic Development Document (EDD) from 2017 reports on steady economic progress and a small reduction in overall poverty, but an increase in rural poverty. The floods in 2015 and the drought in 2016 are likely to exacerbated poverty, especially in rural areas. The EDD refers to the Malawi Growth and Development Strategy (MGDS) and includes emphasis on the need to 'increase resilience to climate related shocks focused on modernizing institutions and policies, expanding social safety nets and investing in resilient infrastructure'.

A Joint Evaluation of PFM Reforms in Malawi was conducted in 2012 (Fölscher, Mkandawire et al. 2012). The evaluation reported that the implementation of the Integrated Financial Management Information System (IFMIS) had led to significant improvement in PFM systems, but that there had been a slowdown since 2008, and even a reversal in some cases. The evaluation found that these challenges were linked to the political and electoral cycle, to the limited policy space available to government and to lack of effective coordination of reforms.

2.3 District Level

The 1998 Local Government Act (LGA) and the 1998 National Development Policy defined a programme of decentralisation in which district governments should take responsibility for planning and managing resources spent within the district. The strategy has been implemented through two ten-year National Decentralisation Programmes (NDP I and II)). The National Development Policy specifies that at least 5% of national revenues, excluding grants, should be transferred to Local Councils.

Central budget units should provide technical support and may also administer some of the finance, but districts should have responsibility for determining the priority activities for each ministry and project. In practice, the process of decentralisation has been patchy. This has happened partly because of limited capacity in district administrations, but also because of the absence of elected representatives at district level from 2005 to 2014. In the absence of local leaders, districts were managed by District Commissioners (DCs), appointed by the centre, with the support from Local Consultative Groups (LGCs), the members of which were also appointed. Democratic representation occurred primarily through the role of village chiefs. Although the DCs and LGCs were engaged in local concerns, they also had close connections with central government and were influenced by central government policy.

Planning. At district level, planning is based on the annual District Socio-Economic Profiles (DSEPs) and District Development Plans (DDPs). The DDPs are based on a compilation of Village Level Action Plans (VLAPs), which cover several villages and have the following contents:

1. location
2. demographic data, including for all villages
3. development issues, including causes and objectives/strategies for addressing each issue
4. proposed actions
5. proposed sub-projects by sector, including funding by public/donor and community
6. five-year plan, summarising sub-projects with budget for 5 years

Budgeting. District governments prepare budget proposals at the same time as line ministries. The budgets include a functional breakdown using about 20 standard functional codes and NLGFC compiles these into a database. This database shows a total budget in FY17 of MWK 32bn for the 28 District Councils and MWK 20bn for the 7 City and Town Councils. The accounts of actual expenditure at district level are not yet fully integrated with the budget structure, although it is planned to achieve this when the full IFMIS is operational.

The budget ceiling for each district is determined by the Intergovernmental Fiscal Transfer Formula (IFTF), which was introduced in 2002. The IFTF is reviewed every three years and further revisions are currently being considered. There are some core indicators, related to population and poverty, and some indicators that relate to sector-specific concerns.

Officials at the district level are primarily employed by central line ministries and most of the development funding comes from projects that are not in the budget. The Local Council budgets therefore cover primarily the non-personnel recurrent costs. Districts are not involved in the provision of electricity, which is managed by the Electricity Supply Corporation of Malawi (ESCOM). Water in urban areas is covered by parastatal Water Boards.

Central Government Grants. The central government makes transfers to districts, who are then free to manage the funds as part of their District planning process. It is not clear from the AFS where these grants feature in the budget, but the following budget items may provide some indication.

a) AFS Annex 2 includes the budget for Local Councils, and has MWK 38.8bn for the Approved Budget (AB) and MWK 109.8bn for the Revised Estimate (RE). This compares with the MWK 52.1bn in the NLGFC database of Local Council budgets.
b) The NLGFC had an allocation of MWK 12.0bn in the FY17 RE and the MLGRD has an allocation of MWK 4.9bn (AFS Annex 2). These funds are probably used for the operations of the NLGFC and MLGRD and are not transferred directly to Local Councils.
c) In the programme budget (AFS Annex 7), there is a 'Decentralisation Services' programme (sub-programme 45.01), with MWK 38.9bn for FY17 AB and MWK 89.9bn for FY17 RE. It

seems likely that this relates to the budget for Local Councils in Annex 2, although the numbers are slightly different, especially for the RE.

d) AFS Annex 7 also has programme 60 on 'Local Development' (MWK 23.1bn for FY AB), which contains 4 sub-programmes (socio-economic infrastructure, livelihoods and skills, public works and social cash transfer). This may refer to the Local Development Fund.
e) There is an item of 'Development LCs' (MWK 3bn for FY17) under Domestically Financed Development Expenditure in AFS Annex 1.

In addition, some funding from central Ministries is devolved to Districts who then have significant autonomy in deciding how to spend the funds and may even use the funds. The accounts record this as coming under central ministry spending.

Devolution by Ministries. Some central ministries have devolved their activities to Districts. There does not seem to be any way of identifying this from the budgets in AFS and it is not clear whether it will be picked up in IFMIS. Many ministries have not devolved their activities and they simply spend money in districts as part of their normal budget. That will be part of the central accounts for each ministry and will not be separately identified, even under IFMIS.

Projects. Projects spend money in districts. The AFS does not have any information on this, but the AMP includes a column in which are listed all the districts in which a project is active. There is no indication of what proportion of total project spending is allocated to districts or of the allocation between the districts listed. In theory, it might be possible to explore the coverage of project spending by assuming a standard proportion of the project budget spent in districts (eg 75%) and then assuming that resources are allocated between districts either equally or in proportion to the population, but there is no evidence on whether this would be a reliable estimate and it is not a safe approach without at least some validation, perhaps for a selection of the more significant projects.

Reviews of Local Government. ODI conducted a review of public expenditure in Malawi which included a review of the processes involved in decentralisation (Tavakoli and Hedger 2009). The review found that Local Assembly budgets accounted for just over MKW 12bn in FY10 and that about 80% of expenditure by Local Assemblies was for health and education, with only about 15% spent on sectors that might have some CC relevance (ie agriculture, roads and the Capital Development Fund). These findings are consistent with those found in this CPEIR.

ODI reviewed the implications of fragmented governance on local service delivery in Malawi (O'Neil, Cammack et al. 2014).

LEDNA reviewed the state of local economic development in Malawi and institutional capacity across a wide range of areas (LEDNA and UCLG Africa 2016). The references to CC are brief, but the review covers many development areas that also contribute to CCA.

The Ministry of Local Government and Rural Development (MLGRD) and Concern Universal reviewed the decentralisation process in Malawi (Chiweza 2010). Although the review is now quite old, there are case studies from Dedza and Ntcheu, which could provide useful background.

2.4 Policy Relating to Climate Change

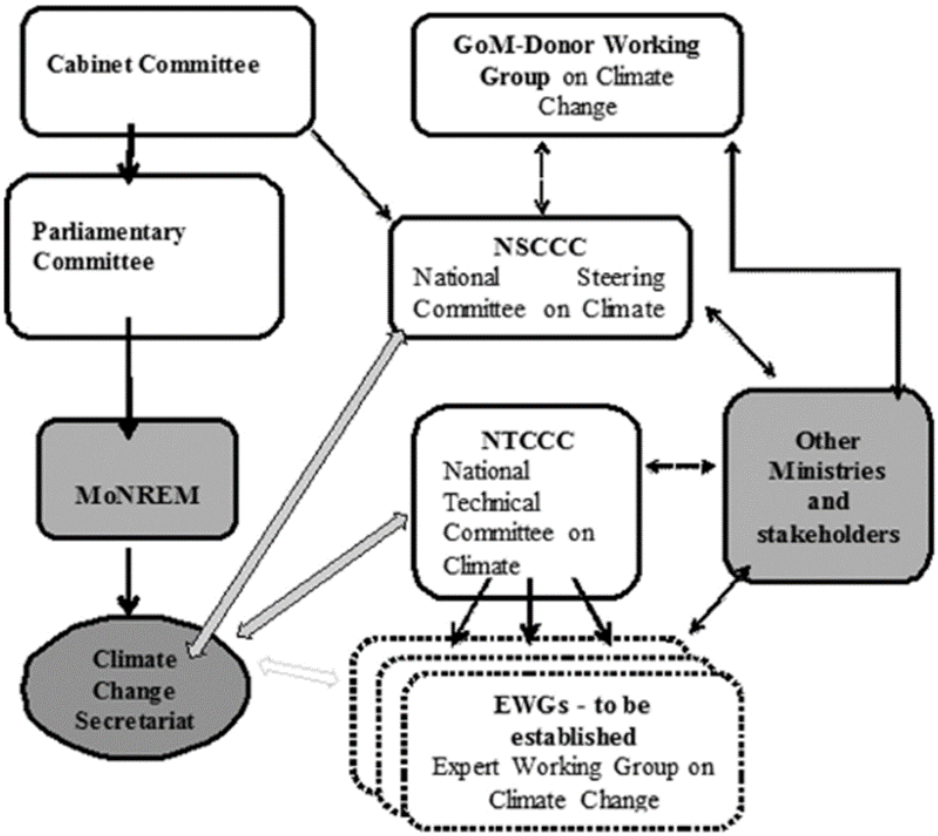
Malawi Growth and Development Strategy (MGDS). The third MGDS (MGDS III) was prepared in 2017 and runs for five years to 2022. The overall objective of MGDS III is '*to move Malawi to a productive, competitive and resilient nation through sustainable economic growth, energy, industrial and infrastructure development while addressing water, climate change and environmental management and population challenges*.' MGDS III has five key priority areas: i)

agriculture, water development and CC; ii) education and skills; iii) transport and ICT; iv) energy, industry and tourism; and v) health and population. There are 31 flagship programmes that are highlighted as having particular priority and a large number of strategies, actions and activities in an Implementation Plan. The MGDS suggests that investment should be frontloaded, with the early priority given to industry, agriculture and energy, to create the growth and revenue to finance the full range of priorities and flagship programmes. For agriculture and CC, there are four flagship programmes, with a total funding requirement of MWK 236bn: a) the Shire River Transformation Programme (MWK 199bn); b) the Green Belt Initiative (MWK 14bn); c) the Small Farms Irrigation Project II (MWK 5bn); and d) the Likhubula River Water Source (MWK 18bn). The strong emphasis on irrigation and water resources in these flagship programmes is reflected in annual budget allocations. In addition, there are eight cross-cutting areas, which include DRM. CC features strongly in MGDS III, especially the first key priority area.

Climate Change Policy. Many countries have a CC Strategy or Policy that provides strategic direction to CC activities. These are typically broad and inclusive in nature and describe the full range of ways in which public policy and expenditure can contribute to adaptation and/or mitigation. It is rare for these strategies to provide effective prioritisation. In theory, the prioritisation should be found in CC Plans, which go into more detail about the allocation of resources across ministries and programmes. However, the preparation of CC Plans is often problematic because they are coordinated by a technical ministry (often the Ministry of Environment) which does not have authority to impose ceilings on other technical ministries. Instead of a broad CC Strategy, Malawi has the 2016 National CC Management Policy (NCCMP). This focuses on how to manage the integration of CC into planning and budgeting, rather than on the strategic content of governments CC activities.

The NCCMP was produced by the Department of Environmental Affairs (DEA) in the Ministry of Natural Resources, Energy & Mining (MNREM) and defines the institutional responsibilities for coordinating CC policy, as summarised in Figure 13. The primary coordinating bodies are the National Steering Committee on CC (NSCCC) and the National Technical Committee on CC (NTCCC). Cabinet and Parliamentary Committees provide strategic oversight and authority and MNREM provide a Climate Change Secretariat, which supports the NSCCC and NTCCC. Expert Working Groups (EWGs) are formed to provide support on specific issues. Of particular relevance to CC, is the Natural Resources Sector Working Group (NRSWG) which provides further opportunities for coordination amongst the three National Steering Committees for CC, Forestry Management and Meteorological Services. A Government/Donor Working Group on CC engages with the NSCCC. Line Ministries engage with NSCCC, NTCCC and the EWGs.

Figure 13 Institutional Coordination Framework for Climate Change



Source: (MNREM/DEA 2016)

The NCCMP defines six priority areas: adaptation, mitigation, capacity, research, financing and cross-cutting issues. In addition, the NCCMP lists 23 sectoral and cross-sectoral policy and strategy documents formulated since 2000 that are affected by CC. There is no direct reference to the strategic priority amongst the range of activities that can contribute to adaptation and/or mitigation, or to the supporting activities of capacity and research.

Nationally Determined Contributions (NDC). The NDC was submitted as Malawi's Intended NDC (INDC) to the Conference of the Parties (CoP) to the United Nations Framework Convention on CC (UNFCCC) in Paris in 2015. When Malawi formally acceded to the Paris Agreement, the INDC became the NDC. The NDC includes a chapter on contributions to reduced greenhouse gas (GHG) emissions, including 32 actions that will deliver targets in reduced emissions for energy, industry, agriculture, forestry and land use and waste. The NDC also includes a chapter on adaptation, identifying 43 actions in agriculture (10 actions), water (5), health (5), energy (6), forestry (3), wildlife (3), fisheries (5), gender and vulnerable groups (2), infrastructure (3) and industry (1). For each action, the NDC defines the need for resources of four types: domestic finance, capacity, technology and international finance.

The NDC includes a commitment to produce an NDC Plan and expects the NDC to influence the preparation of the MGDS IV.

National CC Investment Plan (NCCIP). The NCCIP was prepared in 2013 and identifies the main existing programmes that directly addressed CC as well as a few selected priority programmes for future prioritisation, with a total budget of US$ 955 million over 6 years (ie US$ 159m per year). There are 11 components, organised in four themes. The adaptation theme accounts for US$ 460m and includes watershed management, agriculture, climate proofing infrastructure and disaster risk

management. Mitigation accounts for US$ 188m and cover forestry, waste and energy saving. Research and technology accounts for US$ 182m and capacity development accounts for US$ 126m.

The NCCIP compares the investment plan with the existing level of CC financing and identifies the following key existing programmes active in 2013 that are particularly relevant for CC, with a combined budget of US$ 43m.

- The National Programme for Managing CC (CCP, US$4.2m)
- The Africa Adaptation Programme, focusing on capacity building (US$ 3.9m)
- Climate Adaptation for Rural Livelihoods and Agriculture (US$3m), which is a supplement to the Smallholder Crop Production and Marketing Project (SCPMP)
- The Sustainable Land Management Project (SLMP), focusing on land degradation (US$ 5.2m)
- Leadership for Environment and Development (LEAD), in Lake Chilwa basin (US$ 6m)
- The Enhancing Community Resilience to CC Programme in 12 Districts (US$ 21m)

The NCCIP lists 26 ongoing development projects that respond to CC, including 9 adaptation, 6 mitigation, 4 capacity building and 7 technology projects. The adaptation and technology projects are mainly in agriculture, water and disaster management. Budgets for these are not available.

The NCCIP also points out that the national budget includes many programmes that respond to CC, including in land resources, water, irrigation, forestry, meteorology, environment, disaster management and energy. Total funding in the programmes related to CC was estimated to grow from MWK 11.2bn (US$ 35.1m) in FY11 to MWK 16.6bn (US$ 51.2m) in FY13.

Mainstreaming Environmental Policy. The IMDSA 2017 study refers to environment and CC budget mainstreaming guidelines prepared by the Ministry of Finance, Economic Planning and Development (MFEPD). These apparently include reference to the need for Environmental Impact Assessment (EIA) but care is required in drawing parallels between mainstreaming adaptation and mainstreaming EIA, because one should be seen by line ministries as helping them to promote their activities whilst the other can be seen as constraining their activities. IIED, in collaboration with Poverty and Environment Initiative (PEI) and the Ministry of Development Planning and Cooperation, produced a report in 2011 on mainstreaming environment (IIED 2010). This includes a section on mainstreaming in local government and several sections that deal with the response to CC.

3 Climate Expenditure

3.1 Data Sources

As discussed, the analysis draws primarily on the data presented in the Approved Financial Statements (AFSs) and the Aid Management Platform (AMP). In addition, a breakdown of the composition of Local Council Expenditure is available for FY17. The CPEIR aims to consider both recurrent and development expenditure, including expenditure by central government and by District Councils.

Table 7 presents the public expenditure contained in the various sources since FY14[7]. Expressed as a percentage of GDP, the budget expenditure fell sharply in FY16. This was caused partly by the high increase in nominal GDP as a result of high inflation, which occurred after the Revised Estimates were formed. However, a similar increase in GDP was also experienced in FY15 and FY17 and the Revised Estimates anticipated this and allowed for a larger increase in the budget.

Table 7 Public Expenditure Covered by AFS, AMP and NLGFC (MWK bn)

	FY14 AE	FY15 RE	FY16 RE	FY17 RE	FY18 AE
Exchange Rate (MWK/USD)	395	462	609	724	725
Consumer Prices Index	206	251	305	342	
GDP	2242	2846	3910	4503	5068
Approved Financial Statements					
Total public expenditure	648.3	814.2	917.2	1,137.5	1,323.3
as % of GDP	25.2%	25.6%	23.5%	24.7%	26.1%
Recurrent expenditure	548.1	608.8	698.2	884.1	966.3
of which Local Council budget	14.1	24.4	29.2	109.8	180.0
Local Council as % of total	2.2%	3.0%	3.2%	9.6%	13.6%
Development expenditure	100.2	192.9	217.5	249.9	353.0
Financing					
Foreign financing	133.1	227.2	255.2	248.7	343.9
of which grants	79.2	123.9	130.9	143.6	147.6
loans	53.9	103.3	124.3	105.1	196.3
Aid Management Platform					
Total	360.2	265.4	375.7	247.4	
of which on budget	159.8	94.4	131.4	25.7	
off budget	200.5	171.0	244.3	221.7	

Notes: AE = Approved Estimate, RE = Revised Estimate.
Sources: AFS, AMP and World Development Indicators for Exchange Rate, GDP and CPI

Development expenditure grew significantly faster than recurrent expenditure, because of a growth in both foreign and domestic financing. Large parts of the recurrent budget do not contribute to adaptation and/or mitigation and cannot be considered as climate expenditure, including all those relating to General Public Services and Law and Order and much of the expenditure related to health and education. However, there are significant levels of recurrent expenditure that are related to CC.

[7] Full copies of the AFS are available from FY14. Prior to this, only scanned versions of the project list in Annex 6 were available. For FY13, the data was provided in the form of excel tables which were described to us as the tables printed in the AFS.

In FY14, Local Council budgets were less than 3% of total public expenditure, but this grew rapidly in FY17, with the decentralisation reforms, and they accounted for 13.6% of total public expenditure in the FY18 budget. Whilst much of the Local Council budget is devoted to health and education, there are significant contributions to adaptation through expenditure on agriculture and community development. Section 3.5 reviews this is more detail and suggests that 39% of district council budgets is on activities that make a contribution to adaptation and/or mitigation.

Table 7 also presents the figures from the AMP. In theory, these should be comparable with the foreign financing in the AFS Annex 1 table. In practice they were much higher in the first three years of the period, although they were comparable in FY17. In FY18, the figures in the current AMP are still not complete and they have been excluded from the table. The AMP includes a definition of whether a project is on or off budget and whether it is on or off treasury. The table below suggests that AFS Annex 1 succeeds in picking up much of the foreign financing that is classified as off budget in the AMP.

3.2 National Budget

Ideally, the analysis of climate expenditure in the budget would have been based on cost centres. Unfortunately, this data is not publicly available and the CPEIR has been unable to obtain budget data by cost centre. The best source of budget data available to the CPEIR was the Approved Financial Statements (AFSs). For development expenditure, the AFS presents a table of estimated project expenditure and this has been used to classify the development budget according to its contribution to adaptation and/or mitigation. For recurrent expenditure, until FY17, the AFS presents the budget only at the Ministry, Department or Agency (MDA) level, which allows only for very broad and indicative classification of climate expenditure. For FY17 and FY18, the budget is also presented by programmes and sub-programmes, which include both development and recurrent expenditure, and this provides more insight into the detailed contribution of the entire budget to adaptation and/or mitigation.

Expenditure by Sub-Programme in FY17. A classification was undertaken for the AFS sub-programmes in Annex 7 of the 2018 AFS, using Table 4 on page 10 above as a reference point. Table 8 summarises the results of this classification. The sub-programmes are at a relatively high level of aggregation for classification which affects the accuracy of the results. For example, not all expenditure in the crop development sub-programme has the same degree of relevance for CC and, without more details of the composition of this expenditure, it is possible to provide only an estimate of the average degree of relevance. The table suggests that MWK 258bn of expenditure in FY17 was related to CC, which is 23% of the total public expenditure of MKW 1137bn.

The sub-programmes were classified according to their degree of CC relevance, using the high-mid-low categories described section 1.5. About 42% of the climate expenditure was high relevance, mainly in agriculture, irrigation and water resources. Only 7% of expenditure was classified as mid relevance, reflecting the lack of precision in the sub-programmes and difficulty in distinguishing between high and mid relevance[8]. Over 50% of the climate-related expenditure was low relevance, mainly related to local development and health[9]. The fully CC relevant programmes were very small.

[8] For example, all expenditure in the sub-programme 'Agricultural Diversification' (#49.01) is classified as high relevance, when some expenditure may be aimed primarily at improved incomes for households that are not strongly vulnerable to CC.

[9] The low relevance figures include the sub-programme of decentralisation services, with MWK 89.8bn in FY17, part of which is used for high relevance activities at local level. However, the weighted average of CC expenditure at local level is low CC relevance, so it seems reasonable to classify decentralisation services as low CC relevance.

Table 8 Public Expenditure by Level of Climate Objective (MKW m, FY17 Revised Budget)

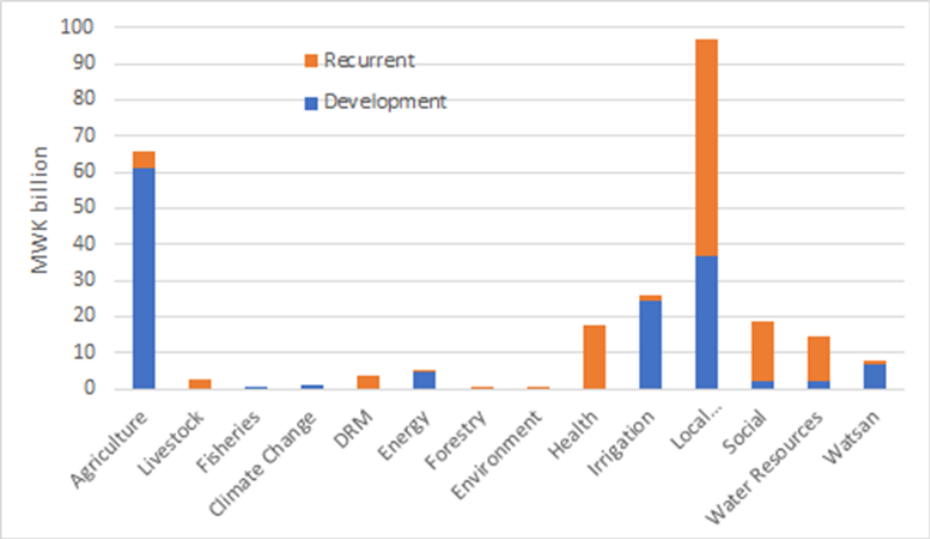
	Full	High	Mid	Low	Total
CC Related Expenditure					
Agriculture	0	63,635	0	2,009	65,644
Livestock	0	0	2,827	0	2,827
Fisheries	0	0	0	97	97
CC Planning	2	0	0	0	2
DRM	0	3,458	0	0	3,458
Energy	0	0	0	4,566	4,566
Forestry	0	29	0	0	29
Environment	0	134	100	36	271
Health	0	0	0	17,830	17,830
Irrigation	0	25,910	0	0	25,910
Local Development	0	0	5,908	90,596	96,505
Social	0	0	2,026	16,564	18,591
Water	0	14,282	0	0	14,282
Sanitation	0	0	7,704	0	7,704
Total	2	107,449	18,567	131,698	257,716
Non-CC Expenditure					879,753
Total Expenditure					1,137,469

Source: AFS 2018

Recurrent Expenditure. The sub-programme budget information presented in AFS Annex 7 includes both recurrent and development expenditure. There is no separate presentation of recurrent expenditure by organisation, function or programme. There is, however, a presentation of the projects in the development expenditure in AFS Annex 6. It is possible to make an estimate of the recurrent climate expenditure by assigning projects to sub-programmes and deducting the project/development expenditure from the total sub-programme expenditure. It is only possible to do this for FY17, which is the first year for which sub-programme expenditure is available.

Figure 14 presents recurrent climate expenditure for FY17, as well as the development expenditure estimates that have been used to estimate recurrent expenditure. The graph uses the CPEIR broad categories because there are too many sub-programmes to show efficiently on a graph. The analysis makes a best guess at reconstructing the assignment of projects to sub-programmes that has been used in the AFS, but it is possible that the AFS has made some different assignments. The figure suggests that recurrent climate expenditure is concentrated in the health, local development and water resources. The health sector expenditure is difficult to categorise because the sub-programmes are quite broad and the only projects that have been classified as climate expenditure are those that refer explicitly to climate-sensitive diseases. For local development, the transfer to Local Councils does not feature in the project list and is treated as recurrent expenditure, even though much of the transfer will have been used for development activities at a local level. For water resources, it is surprising that development expenditure is small, but the sector is cross-cutting and difficult to define. It is possible that the AFS sub-programme expenditure for water resources includes some development projects that the CPEIR has classified in other sub-programmes (eg as agriculture, irrigation, local and irrigation expenditure) although a review of the projects in these sub-programmes does not reveal any obvious candidates for the water resources sub-programme.

Figure 14 Recurrent Climate Expenditure (FY17, MWK billion)



Sources: AFS Annexes 6 and 7

Development Expenditure. AFS Annex 6 includes a list of projects that the Ministry of Finance (MoF) expect to be implemented in the coming year. The AFSs from FY10 to FY17 include about 108 projects that are likely to contribute to adaptation and/or mitigation[10]. These have been classified according to the degree of CC relevance and the ABS. This was based primarily on the title of the project, but larger projects with unclear scope and balance of activities were investigated in more detail, if project documents were easily available on the internet.

This classification suggested that nearly MWK 140bn of project expenditure was related to CC in FY17. This compared with the total or MWK 242bn obtained from classifying the sub-programme including both recurrent and development expenditure, suggesting that MWK 102bn was spent on climate expenditure in the recurrent budget[11].

Figure 15 presents the results of this classification for the 9 years for which data is available, including a breakdown of expenditure by broad CPEIR sector. The figures present the results in current MWK billion (in the columns) and as a % of total public expenditure (as diamonds) and of GDP (as black crosses). For comparison, the figure also presents the results of the classification of the AMP project data in red crosses. This is referred to in more detail in section 3.7.

Figure 15 presents some surprising findings, much of which can be explained by a few large projects. Most striking is the dramatic jump in CC expenditure in FY14. This was caused largely by the inclusion in FY14 of the Agriculture Sector Wide Approach loan of MWK 20.5bn and the MASAF IV loan of MWK 15.7bn, both from the World Bank. The funding on these projects was lower in FY15, but there was a major increase in funding for the Shire River Basin Management Project and the National Water Development Programme, as well as a major increase in the Energy Sector Support Project, which resulted in a further increase in funding in FY15. The large increase in FY17 is explained mainly by a jump in spending in the Agriculture Sector Wide Approach, MASAF IV and the Shire River Basin Management project, all funded by the World Bank, plus, to a lesser extent a large

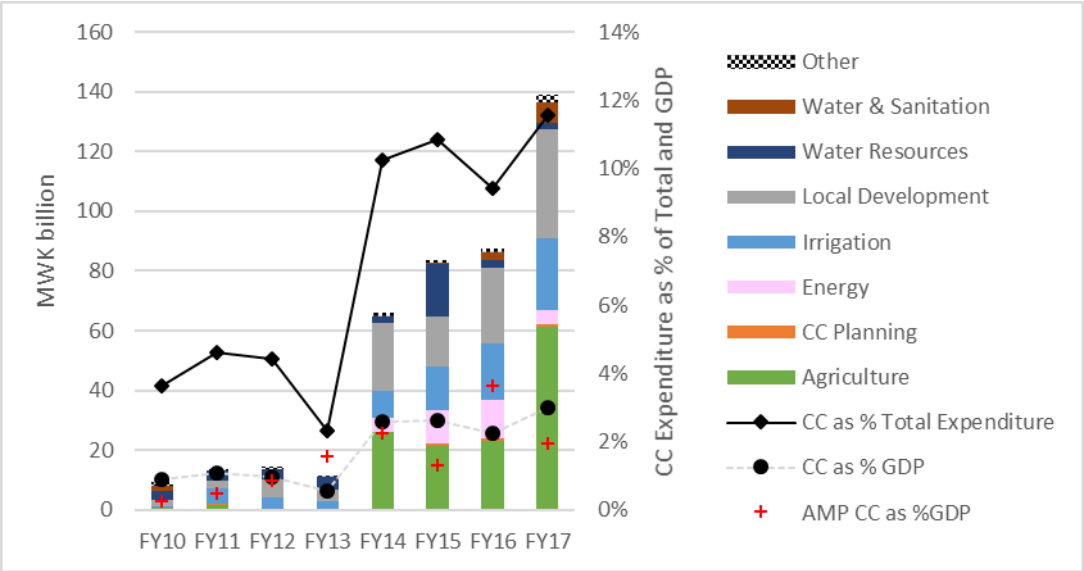
[10] It is not possible to be precise about the exact number because some projects are referred to in different ways and judgements need to be made about whether or not they are the same project. There are also some projects where the extent of the contribution to adaptation is unclear from the title of the project and from descriptions that are easily available on the internet.

[11] It is also possible that some projects have been assigned in the CPEIR to different sub-programmes and that the analysis of Annex 6 projects done by the CPEIR has excluded some projects that are assigned to CC sub-programmes.

dam project funded by the EU and the Sustainable Rural Water Supply and Sanitation Project, funded by AfDB.

Thus, the main conclusion to draw from Figure 15 is that the increased importance of a small number of large projects that contribute to adaptation dominates the national statistics on climate expenditure. This caused a large jump in climate expenditure in FY14, both in MWK as well as when expressed as a % of total public expenditure and as a % of GDP. Since FY14, climate expenditure has been maintained at a level close to, or above, 10% of total public expenditure.

Figure 15 Climate Related Development Expenditure (MWK billion)



Source: AFS Annex 6 Project List

Figure 15 also shows the sectoral composition of climate expenditure using the broad level classification adopted for this CPEIR. The most important sectors were agriculture, irrigation and local development. There are no clear trends in the sectoral composition. FY15 saw a significant one-off increase in water resources expenditure and FY17 an increase in water and sanitation expenditure. There is some suggestion that energy became more important in FY15 and FY16.

Largest Projects. Table 9 presents the top 20 CC related development projects. These top 20 projects accounted for 66% of total climate expenditure over the 8 years. The shaded cells are projects that are also in the top 20 in the AMP database and the red lettered cells are projects that were studied as part of the qualitative CC Impact Appraisal (CCIA) undertaken for this CPEIR in Nkhata Bay, Ntcheu and Zomba. The table shows clearly that there has been a substantial increase in the number of large projects involved in adaptation and/or mitigation and explains the major increase described in Figure 15. In particular, it shows the large increases in expenditure in recent years on the Agriculture Sector-Wide Approach (ASWAP), Malawi Social Action Fund (MASAF), Shire River Basin Management Project (SRBM) and National Water Development Programme (NWDP).

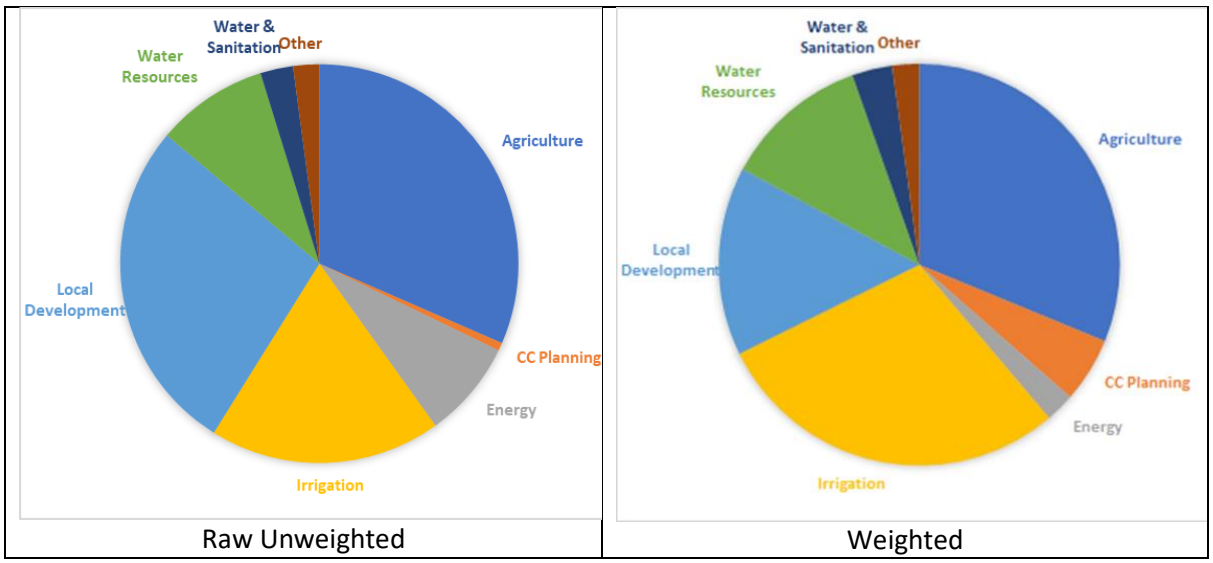
Table 9 Most Significant CC Projects in the AFS

PROJECT NAME	Donor	AFS sub-pro	CPEIR Sector	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	8YR Raw	% Tot	8YR Wtd	HML	A M	ABS
Agriculture Sector Wide Approach - Support Pr	WB	49.03	Agric					20.5	8.5	6.8	26.2	62.0	12%	6.2	M	A	10%
MASAF (3 and 4)	WB	60.04	Local			2.4	1.1	15.7	5.0	11.3	20.0	55.5	11%	2.8	L	A	5%
Shire river basin management project ($31.250	WB	4.03	Agric					1.8	8.9	6.8	24.7	42.3	8%	6.3	H	A	15%
National Water Development Programme	WB	4.03	Water	2.9	3.1	0.6	1.0	1.6	12.5	2.2	0.0	23.9	5%	3.6	M	A	15%
Smallholder Agriculture Infrastructure Support	AfDB	60.01	Irrig		0.8			1.4	3.3	6.5	7.0	18.9	4%	1.9	M	A	10%
Smallholder Irrigation and and Value Addition	AfDB	96.03	Irrig						3.9	6.2	6.9	17.0	3%	2.5	M	A	15%
Energy Sector	WB	13.07	Energy							11.6	4.5	16.1	3%	0.8	L	M	5%
Recovery - Public Works Programme	WB	60.03	Local	0.5	1.1				1.0	6.3	3.9	12.9	2%	0.6	L	A	5%
Energy Sector Support Projects	WB	13.07	Energy					1.9	10.7		0.0	12.6	2%	0.1	L	M	1%
Irrigation, Rural Livelihood and Agriculture (IR	WB	96.03	Irrig	0.1	1.2	3.1	1.4	2.8	2.8	0.6	0.0	11.9	2%	3.0	M	A	25%
Sustainable Agricultural Production Programm	IFAD	49.07	Agric							4.7	4.8	9.5	2%	1.4	M	A	15%
Agriculture Productivity Program for Southern	WB	49.07	Agric							3.8	5.4	9.3	2%	0.9	M	A	10%
Farm Income Diversification Program	EU	49.01	Local	0.5	0.6	0.6		3.5	3.1	0.6	0.0	8.8	2%	1.8	M	A	20%
Construction of Bwanje Dam	EU	96.03	Irrig								7.5	7.5	1%	1.9	H	A	25%
Green Belt Initiative		96.09	Irrig	0.1	2.0	0.2	1.0	0.4	2.0	1.4	0.4	7.5	1%	1.9	H	A	25%
Competitiveness and Job Creation Support Proj	AfDB	60.02	Local					0.2	1.6	2.4	2.6	6.8	1%	0.3	L	A	5%
National Water Development Programme	AfDB	4.03	Water				1.3	0.1	5.1		0.0	6.5	1%	1.0	M	A	15%
Support to Local Economic Development (MASA	KfW	60.02	Local		0.2	1.0	1.0				3.9	6.1	1%	0.3	L	A	5%
Sustainable Rural Water Supply and Sanitation	AfDB	4.04	Watsan						0.0	0.1	6.0	6.1	1%	0.9	M	A	15%
Rural Livelihoods and Economic Enhancement	IFAD &	96.01	Local					0.8	1.2	1.6	1.5	5.1	1%	0.5	L	A	10%

Source: AFS

Expenditure Weighted by ABS. The above analysis relies entirely on the 'raw' unweighted CC expenditure, which means that patterns are dominated by large-spending projects and programmes that may make a relatively small contribution to adaptation (eg health). The pattern of expenditure changes significantly when the expenditure is weighted to reflect the relative importance of adaptation and/or mitigation in the benefits of expenditure, as shown in Figure 16. The relative importance of irrigation, water resources and CC planning is increased and local development and energy become less important. The differences presented in Figure 16 are less than in some countries, because the CPEIR has excluded large infrastructure projects that may have some CC proofing (especially roads) and has been relatively selective in including health programmes only if there is explicit reference to climate sensitive diseases. If a broader interpretation of health and infrastructure had been taken, then these sectors would have features significantly in the unweighted totals, but have made only a small contribution in the weighted.

Figure 16 Raw Unweighted and Weighted Climate Expenditure (FY10 to FY17)

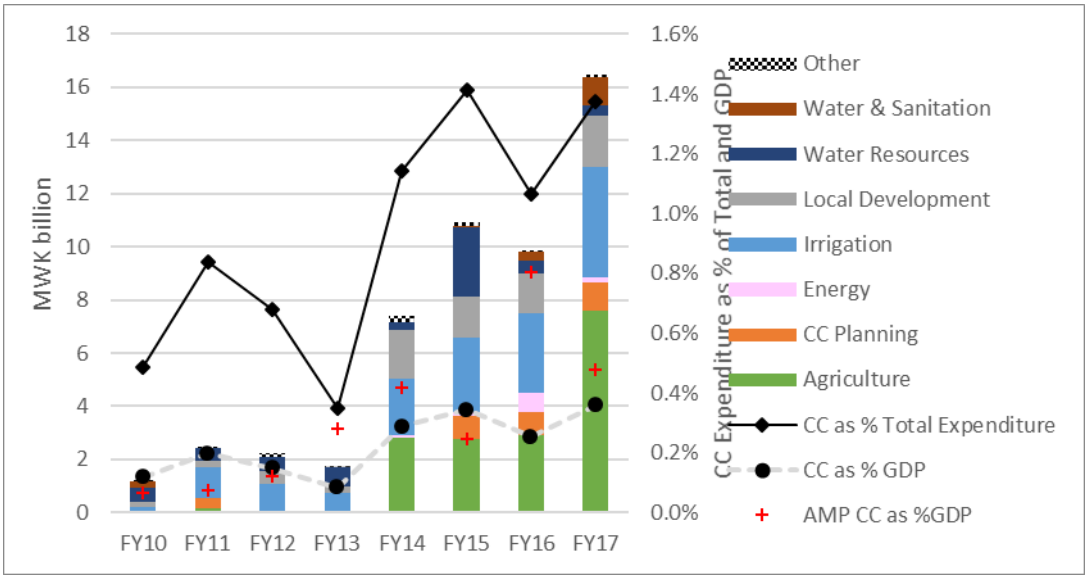


Source: AFS

Figure 17 presents the evolution of CC expenditure weighted by the ABS, to give an indication of the relative contributions to adaptation. The trends in total CC expenditure are similar to those of the

unweighted expenditure, but the sectoral composition is different, with a much higher weight for high CC relevance sectors like agriculture and irrigation.

Figure 17 CC Weighted Expenditure by Sector (FY10 to FY17)



Source: AFS

The Adaptation Gap. Because the ABS is an estimate of the proportion of total benefits, the expenditure weighted by ABS can be used to provide an estimate of the total benefits that are expected to be derived from the climate expenditure. As almost all the expenditure is adaptation, rather than mitigation, these benefits are in the form of reductions in future economic impact, or broad loss and damage (L&D). The ABS provides only an estimate of the share of total benefits and the estimate of the absolute value of adaptation benefits therefore requires an estimate of the Benefit Cost Ratio (BCR) of the expenditure. Estimating this for all projects is not possible within the scope of this CPEIR. However, a preliminary indication of the likely level of adaptation benefits can be obtained by assuming that the prioritisation processes that are active in approving programmes in Malawi ensure that all expenditure delivers a BCR above a certain 'approval threshold'. The prioritisation process may include some economic analysis for the larger programmes, especially if they are funded by donors, but it will also include lobbying, consultation and political considerations, all of which operate to try to ensure that projects deliver value to society.

In many countries, this approval threshold is perhaps a 15% Internal Rate of Return (IRR) or a BCR of at least 1.5. Many project will be higher than this and some CPEIRs and CCFFs have used an assumption that the average BCR of public expenditure is 2.0. If this assumption is used in Malawi, then the adaptation expenditure in FY17, which has a weighted value of 0.36% of GDP would deliver adaptation benefits of 0.72% of GDP. These will be distributed over the next 20 or 30 years, depending on the average life of the project and will tend to increase gradually as the economic impact of CC increases with the severity of the CC. Based on work in other similarly vulnerable countries on the economic impact of CC, the total potential economic impact of CC is likely to reduce absolute GDP by 10% to 20% by 2050 and the Net Present Value (NPV) of these losses is likely to reach about 115% of current GDP. Assuming that climate expenditure continues at FY17 levels for the next 32 years, the total adaptation benefits will be 23% of current GDP (ie 32 times 0.72% of GDP) but half of these will occur after 2050, so only 11.5% of current GDP will be saved in the period up to 2050. This is exactly 10% of the potential economic impact of 115% of current GDP, suggesting that the Adaptation Gap is 90%.

3.3 Actual Expenditure

Availability of Actual Expenditure Data. At present, there is no systematic record of actual expenditure at a level of detail below that of the budget vote[12] and public accounts showing actual expenditure are often available many months after the year end. An Integrated Financial Management Information System (IFMIS) is in the process of being introduced and aims to cover both national and district level. However, there are no plans in the next few years for IFMIS to provide data on actual expenditure by cost centre of by sub-programme.

Although IFMIS does not keep central records of organisational or functional classification below the budget vote, many ministries and districts do record the cost centre on the payment request forms and it is, in theory, possible to examine all individual request forms in order to construct expenditure table by cost centre. In practice, this analysis would require very substantial commitment of scarce human resources and it is not clear whether the payment request forms are always exclusively associated with one cost centre[13]. The analysis of individual payment records was not possible within the resources available for this CPEIR. Such analysis is proposed as an activity under a second phase CPEIR and this will give evidence about the extent to which actual CC expenditure differs from budget CC expenditure. However, until IFMIS is able to provide more detailed and timely information on actual expenditure it will not be possible to include analysis of actual expenditure in routine mainstreaming of CC into government activities.

The Importance of Classifying Actual Expenditure. There are a number of reasons in Malawi why actual expenditure does not follow the budget, as described in the bullets below.

- As in most countries, delays in the management of government activities result in delays in actual expenditure and low disbursement rates. This occurs particularly at the national level, as illustrated in Figure 18. Actual CC expenditure is thus likely to be significantly below budget CC expenditure.
- It is sometimes necessary to issue revised budget estimates if revenue is higher than expected, which can happen especially in years of rapid inflation and devaluation. The allocations in supplementary budgets often differ significantly from the original budgets and actual expenditure is likely to follow the revised budget more closely than the original budget. Relying on original budgets can thus be misleading.
- There is no central system to prevent line ministries from allocating actual funds to cost centres in a way that departs from the budget for the cost centre[14]. Thus, even if cost centre budgets were available, they would not necessarily reflect actual expenditure by cost centre. A second phase CPEIR that included analysis of payment requests and vouchers would reveal the extent to which actual and budget expenditure varied at the cost centre level and this would assist decisions on the urgency of improving IFMIS to capture actual expenditure by cost centre.
- Some line ministries have devolved expenditure to districts and make transfers to the local councils. In theory, this is usually done to allow districts to pursue local priorities, within a

[12] IFMIS also records expenditure by economic classification (ie salaries, operation and maintenance, interest …). However, this is of no interest for the CPEIR because most economic categories in one organisational or functional unit contribute equally to the objectives and benefits of the unit and would be given the same classification in the CPEIR.

[13] For example, government counterpart activities for some projects may cut across the responsibilities of several cost centres.

[14] Whilst this is normally be considered bad budget practice, it is challenging for aid-dependent countries like Malawi to stick to detailed budgets, because actual government expenditure is affected by projects where decisions are not necessarily made in line with the budget cycle.

broad programme defined at the centre. In practice, districts are able to use some funds for wider purposes, beyond those originally expected by the line ministry.

- Some projects are defined in quite general terms and the activities actually funded through the year may vary considerably. This applies particularly to rural development projects which may be engaged in a wide variety of activities (eg agricultural production, markets, local infrastructure, water resources or income diversification). Capturing this would require a major study since most projects adopt their own practices and definitions which would need to be mapped against the standard cost centres and/or sub-programmes used by government.

If IFMIS were able to provide information on actual expenditure at the cost centre level (ie one or two levels below the ministry or agency), this would be the best source of data for CC classification because there would be sufficient detail for effective classification and because each cost centre would then be able to see the classification and have an incentive for revising and improving the extent to which its expenditure contributes to adaptation and/or mitigation.

Another potential source of evidence on actual expenditure is the Consolidated Annual Appropriation Accounts (CAAA) provided by the Accountant General's Office. The CAAA data was available to the 2014 Joint Public Expenditure Review (JPER) on Malawi's Environment, CC and Disaster Risk Management Sectors. This CPEIR has not had access to the CAAA data, but it seems unlikely that it will provide data at the cost centre level, since the basic paperwork in payment requests and vouchers does not record the cost centre.

There are a number of reasons why the CPEIR remains valid, despite not having access to actual expenditure data in the budget.

a) The first objective of the CPEIR is to influence planning and budget prioritisation, which are reflected in the budget estimates. The approved estimates reflect the priorities of the combined organs of government, including the administration and the National Assembly.
b) There are much bigger reasons for poor disbursement (eg lack of funds and lack of capacity) which are difficult to assess and need to be addressed mainly by development policy. CC policy may support reforms to improve disbursement, but cannot lead these reforms.
c) There is no scope to include a CC tag/score in the current IFMIS, so analysis of actual expenditure patterns would always have to happen after accounts are available and could not become part of the routine accounts.
d) IFMIS is in a state of transition and faces some major challenges. Whilst it is possible that a future IFMIS could include CC tags/scores, it is more likely that a future IFMIS will consolidate on the core functions, rather than adding new functions.
e) Whilst data on actual expenditure may record the money actually spent, the classification of how this money is spent is not always accurate. In particular, Local Councils often shift resources that are intended for one purpose to other purposes.

The ability of CPEIRs in other countries to include actual expenditure is varied. Some have relied primarily on budgets, rather than actual expenditure (eg Ethiopia, Ghana and Tanzania). Uganda covered both budget figures and actual expenditure and reported considerable challenges in reconciling data sources. Outside Africa, some CPEIRs have analysed only budget data (eg Thailand and Pakistan). There are some countries with well-established PFM systems that also consider actual expenditure (eg India, Bangladesh and Vietnam). Some countries have attempted to include actual expenditure but have succeeded in providing only a partial coverage (eg Nepal, Cambodia and Samoa). In CPEIRs that have reviewed both budget figures and actual expenditure, the recommendations arising from the comparison are generally limited to the observation that low disbursement rates are a continuing development challenge. There is, therefore, no standard CPEIR approach to covering actual expenditure.

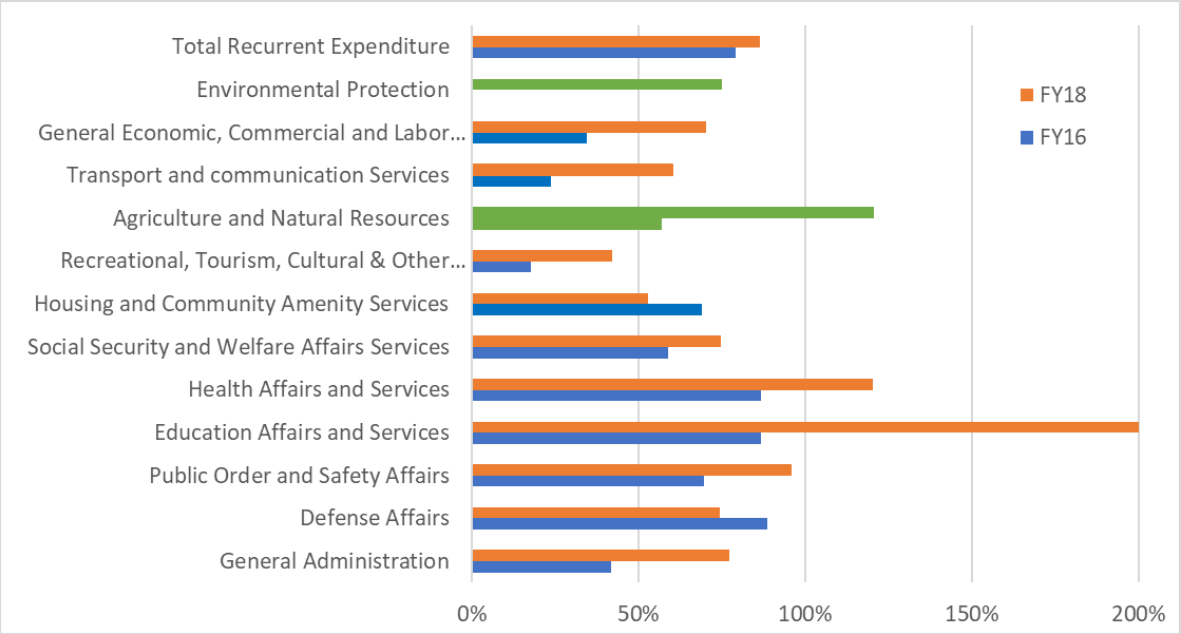
Disbursement Rate. Many Malawian ministries struggle to achieve good budget disbursement. Consistently low disbursement leads to inefficient planning and budgeting. Those responsible for managing services and projects find it difficult to predict whether resources will be available and there are risks that budget formulation builds in over-budgeting, in the knowledge that actual expenditure will be lower. The challenge is made more complex during periods of high and uncertain inflation, since, if inflation is higher/lower than expected, the Ministry of Finance, Economic Planning and Development (MFEPD) will have more/less revenue to allocate than was expected during the preparation of the budget. This is a serious challenge for Malawi but it is not a challenge that can be addressed from the perspective of CC expenditure alone and it needs to be resolved in a more comprehensive way.

Although poor disbursement is a broader development issue, it is interesting to consider whether climate expenditure is more vulnerable to slow disbursement than other expenditure. It can be useful to consider three main reasons for low disbursement: a) weak management of services and projects; b) lack of resources; and c) complications arising because of a possible clash between the seasonality of activities and the fiscal year. If the third reason were important, then one might expect disbursement rates for CC expenditure to be lower than average because they are often highest in natural resource sectors where activities are most seasonal.

Annual Economic Report. This CPEIR has not had access to data for actual expenditure at a level of detail that is sufficient to allow for meaningful classification of CC relevance (ie at the level of project, sub-programme or cost centre). It is therefore unable to present strong evidence on the disbursement rate of climate expenditure. However, the Annual Economic Reports (AERs) provide disbursement rates for recurrent expenditure for the main functions of government. This level of detail is too aggregated for meaningful CC classification, but gives some broad indication of whether the functions that are most closely related to CC have significantly slower disbursement rates. Figure 18 shows the disbursement rates by function for FY16 and FY18[15]. The general impression is that disbursement rates are highly variable between functions and between years, which makes it difficult to draw any general conclusions about whether climate expenditure is more vulnerable to poor disbursement. In particular, Figure 18 shows that the disbursement rate for 'Agriculture and Natural Resources' was slightly lower than average in FY16 and significantly higher than average if FY18. The AER data on disbursement therefore provides no evidence that CC expenditure is likely to be more than averagely affected by low disbursement. Labour, transport, housing and social services may also make a contribution to climate expenditure, but they are not strongly seasonal, and two of these functions have better disbursement rates than agriculture and natural resources and two have worse rates. There is, therefore, no evidence from the AERs that climate expenditure suffers from low disbursement more than other functions of government.

[15] Unfortunately, there is a gap in data for FY17, which is not provided in either the 2017 or 2018 AER

Figure 18 Recurrent Expenditure Disbursement Rates by Function (FY16 and FY18)



Source: 2017 and 2018 Annual Economic Reports

The 2014 Joint Public Expenditure Review. The MoF published a Joint Public Expenditure Review (JPER) covering expenditure in environment, CC and disaster risk management in 2014. The JPER reviewed the budget and actual expenditure for five ministries responsible for expenditure in environment and natural resource management (ENRM), for Local Councils and for the Department of Disaster Management Affairs (DMA) for the period FY07 to FY12, including both recurrent and capital expenditure. Table 10 summarises the results and shows that disbursement rates for recurrent expenditure are generally above 90%, except for Local Councils, which are 88%. The high disbursement rate for DODMA reflects the requirement to purchase emergency maize in FY07.

Capital disbursement rates are more variable and were especially low in MECCM, MTWC and MAFS. According to the JPER this reflects the greater technical challenges in managing development projects and, since most of the projects are donor-funded, the unpredictability of donor disbursement in some projects, either due to donor scheduling issues or to issues related to discussions over project policies.

Table 10 Disbursement Rate (Average FY07 to FY12)

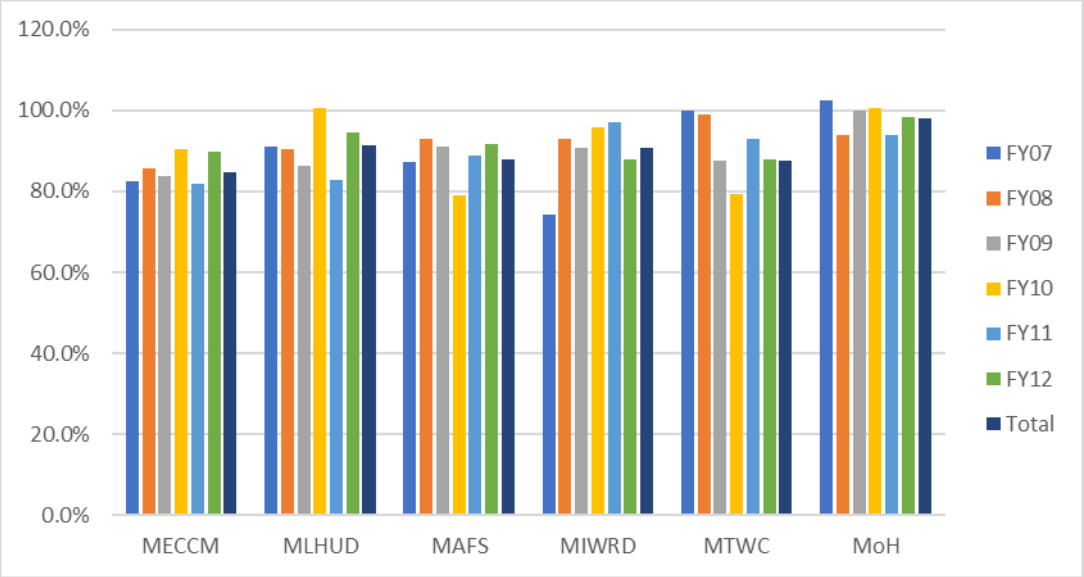
	Recurrent	Capital
Ministry of Environment and Climate Change Management (MECCM)	94.8%	70.5%
Ministry of Land Housing and Urban Development (MLHUD)	92.6%	91.1%
Ministry of Agriculture and Food Security (MAFS)	93.5%	85.0%
Ministry of Irrigation and Water Development (MIWD)	99.0%	89.6%
Ministry of Tourism, Wildlife and Culture (MTWC)	95.8%	79.9%
Local Councils	88.0%	
Average	94.0%	83.2%
Department of Disaster Management Affairs (DODMA)	125.0%	

Source: MoF 2014 JPER

Figure 19 shows the change in the total disbursement rate for both recurrent and capital over the 6 years to FY12 and suggests that there are some variations between year for ministries, but that the variations are not dramatic. The same graph for capital expenditure alone shows a similar pattern,

since the variation in the total disbursement rates is dominated by variation in the capital disbursement rates.

Figure 19 Evolution of Disbursement Rate FY07 to FY12



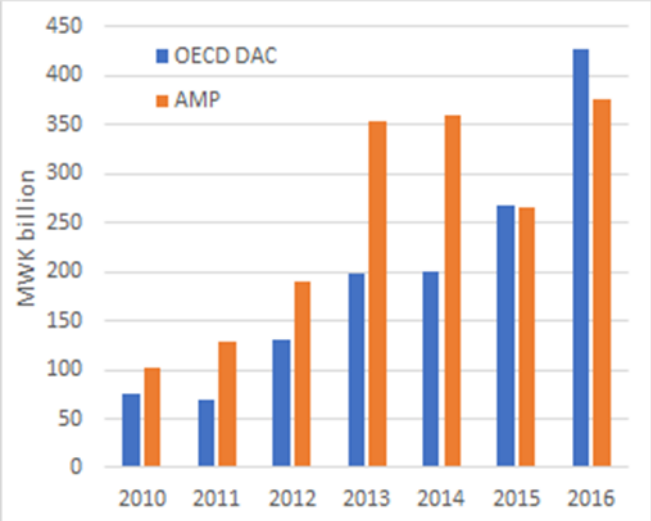
Source: MoF 2014 JPER

3.4 International Partners

International partners enter data on actual disbursements in Malawi in the Aid Management Platform (AMP). The AMP has been criticised in the past for being unreliable, but Figure 20 compares the data in AMP with the data for Malawi in the OECD DAC International Development Statistics and suggests that coverage has been relatively good over the period 2010 to 2016.

The AMP has undergone a series of reforms to strengthen the system and should now be recording the majority of international support.

Figure 20 AMP and OECD DAC Aid Disbursement Data

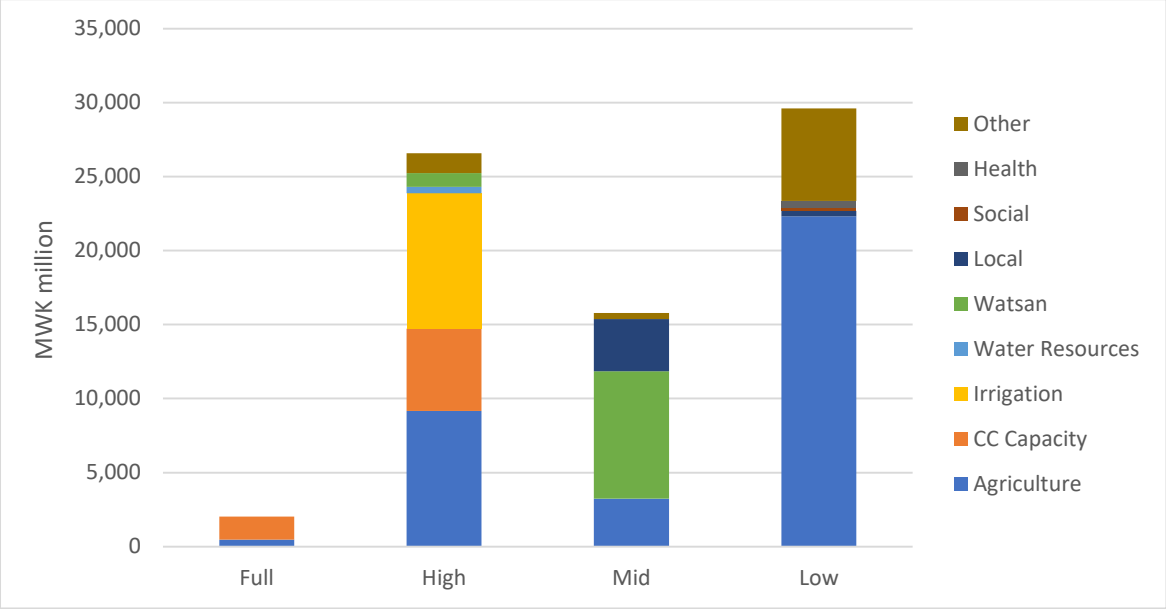


AMP identifies 1655 projects as having some disbursement during the period FY07 to FY17. Of these projects, 594 were classified as making some contribution to adaptation and/or mitigation, using the same classification methods as were used for the AFS projects, as described in section 1.5. Figure 21 and Table 11 show the breakdown of climate expenditure for FY17, by degree of CC relevance and by broad CPEIR theme, excluding DRM. Total donor funded climate expenditure was MKW 168.5bn, which is 49% of the total donor expenditure.

Agriculture accounted for the largest share, and included high levels of expenditure on low CC relevance projects that are focused primarily on development, as well as significant high CC relevance projects. Irrigation projects also had a high share and were all high CC relevance. Water and sanitation also received a high share and were classified as mid CC relevance because much of

the focus of the projects was expected to be on the improvement of water supply and sanitation services, regardless of CC. Capacity building for CC received the fourth highest share and was either full or high CC relevance.

Figure 21 Climate Expenditure in the AMP by Degree of CC Relevance (FY17)



Source: AMP

Table 11 Foreign Funded Project Expenditure by Level of Climate Objective (MKW m, AMP FY17)

	Full	High	Mid	Low	Total
Climate Related Projects					
Agriculture	461	9,157	3,222	22,310	35,151
CC Planning	1,562	5,570	0	0	7,132
DRM	0	93,254	0	1,207	94,461
Energy	0	296	0	4,343	4,639
Biodiversity	0	0	0	1,920	1,920
Forestry	0	1,049	407	0	1,456
Health	0	0	0	432	432
Irrigation	0	9,145	0	0	9,145
Local	0	0	3,527	366	3,893
Social	0	0	0	248	248
Water	0	433	17	0	451
Watsan	0	938	8,605	0	9,543
Total	2,023	119,842	15,778	30,827	168,471
Non-CC Projects					173,191
Total Projects					341,662

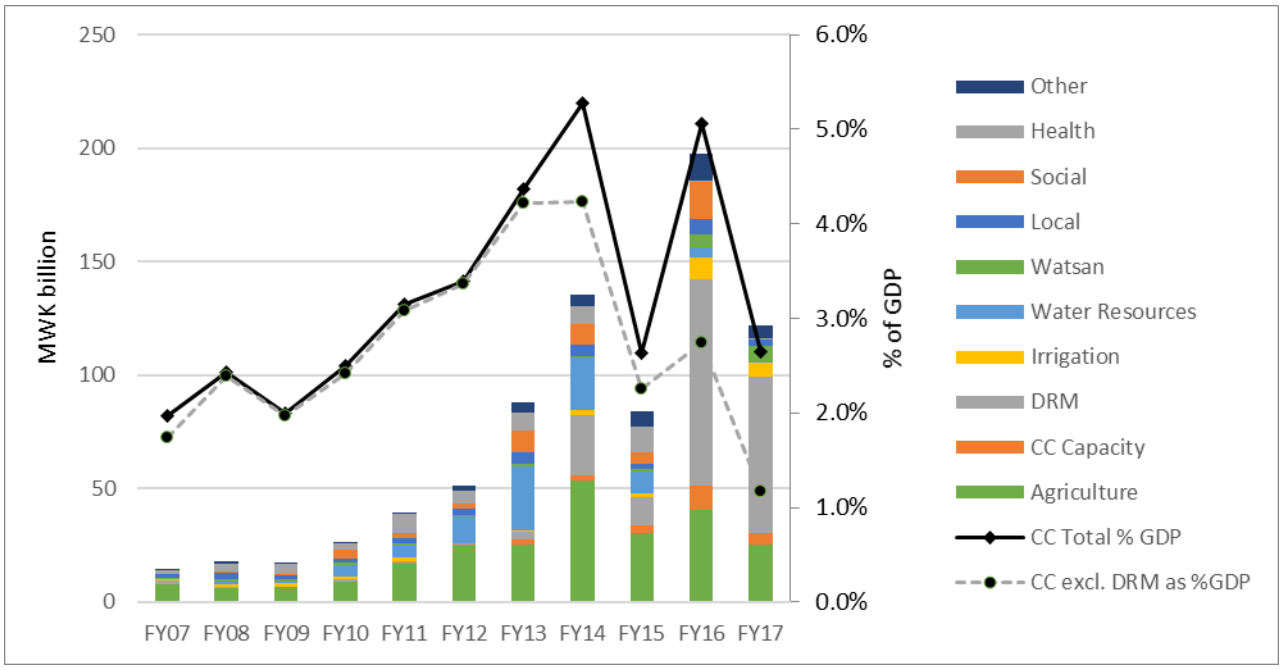
Source: AMP

Figure 22 shows the evolution of donor-funded climate expenditure over the last 11 years, both in current MWK and as a percentage of GDP. The climate expenditure as a percentage of GDP is expressed both as a total of all climate expenditure (solid black line) and excluding DRM (dashed grey line). There was a steady increase in climate expenditure, when expressed as a percentage of GDP from FY07 to FY14. Part of this increase may reflect the improved reliability of data capture in

the AMP. In FY14, there was a sharp drop in climate expenditure, both in MWK and as a percentage of GDP. This affected almost all sectors but was especially marked in agriculture and water resources, largely because of the fall in spending on Farm Input Subsidy (DfID), Irrigation, Rural Livelihoods and Agriculture Project (WB), ASWAP (pooled Trust Fund), the EU Food Security Programme and the National Water Development Project (WB). There was a sharp recovery in FY16, dominated by DRM (mainly from the Protracted Relief and Recovery Operations (PRRO) and the Malawi Floods Emergency Recovery Project (MFERP)), but also affecting agriculture and social expenditure (mainly from MASAF IV).

In FY17, total levels of climate expenditure returned to a similar percentage of GDP to the level in FY15 when DRM is included, but fell sharply without DRM to the lowest level during the period. It is possible that some international partners have diverted expenditure from CC relevant development to DRM and that the CC relevant development expenditure will recover in FY18, if less DRM is required, after the good harvests of FY17. However, this is not yet clear.

Figure 22 Climate Expenditure in the AMP by Sector (FY07 to FY17)



Source: AMP

Table 12 presents the top 10 foreign funded projects with CC relevance over the last 11 years. These projects account for 55% of the total CC expenditure over the 11 years. The projects are selected on the basis not of the total expenditure, but of the weighted CC expenditure, determined by multiplying the 'raw' expenditure by the ABS.

Table 12 Most Significant Projects in the AMP

Project Title	Dono	CPEIR Sect	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	8Yr Ra	8YR W	HML	AM	ABS
Protracted Relief and Recovery Operations (PRRO200692)	Multi	DRM	0.0	0.0	0.0	0.0	0.3	19.0	114	90.2	223.2	67.0	H	A	30%
Second National Water Development Project SIL (FY07)	WB	Water	11.6	3.5	20.2	45.3	41.4	16.4	7.0	0.0	155.6	46.7	H	A	30%
Irrigation, Rural Livelihoods and Agriculture Development I	WB	Agric	5.8	7.3	18.0	22.6	21.2	11.8	0.0	0.0	108.8	27.2	H	A	25%
Emergency Operation (EMOP200608) - Targeted Relief Food	Common F	DRM	0.0	0.0	0.0	0.0	56.6	0.4	0.0	0.0	57.0	17.1	H	A	30%
Enhancing Community Resilience Programme	DfID	CC	0.0	0.0	1.1	5.4	3.0	3.0	15.6	5.4	33.4	10.0	H	A	30%
Malawi Floods Emergency Recovery	WB	DRM	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	29.0	8.7	H	A	30%
Shire River Basin Management Program (Phase 1 and GEF)	WB	Agric	0.0	0.0	0.0	0.0	0.0	17.3	12.2	3.5	33.0	8.3	H	A	25%
CRS-WALA: LAND AND WATER MANAGEMENT - Lilongwe	USAID	Water	0.0	7.8	7.8	11.4	0.0	0.0	0.0	0.0	27.0	8.1	H	A	30%
CRS-WALA: LAND AND WATER MANAGEMENT - Dedza	USAID	Water	6.7	6.5	6.5	5.2	0.0	0.0	0.0	0.0	24.9	7.5	H	A	30%
Lake Chilwa Basin Climate Change Adaptation Programme	Norway	CC	1.0	1.2	1.5	1.7	0.6	0.6	0.5	0.0	7.2	7.2	F	A	100%
ASWAp Pooled Trust Fund (Second Additional Financing to	DfID	Agric	0.0	0.0	0.0	0.0	41.1	7.2	9.2	7.5	65.0	6.5	L	A	10%
National Water Development Program (Loan)	AfDB	Water	1.3	2.6	5.2	5.5	4.4	2.7	0.0	0.0	21.6	6.5	H	A	30%
Agriculture - Farm Input Subsidy Programme	DfID	Agric	0.0	0.0	30.9	10.4	20.9	7.6	3.1	0.3	110.7	5.5	L	A	5%
LUANAR Capacity Building for Managing Climate Change Pr	Norway	CC	0.0	0.0	0.0	0.7	1.2	1.7	1.4	0.5	5.4	5.4	F	A	100%
CRS-WALA: LAND AND WATER MANAGEMENT - Blantyre	USAID	Water	4.5	4.2	4.2	3.6	0.0	0.0	0.0	0.0	16.4	4.9	H	A	30%
Food Security Programme - Foreign Exchange Facility	EU	Agric	11.9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9	4.8	M	A	20%
Smallholder Irrigation and Value Addition (GAFSP)	AfDB	Irrig	0.0	0.0	0.0	0.0	1.1	2.6	8.8	3.2	15.7	4.7	H	A	30%
National Water Development Program - AusAID	Australian	Water	0.0	1.5	2.0	10.5	0.0	0.0	0.0	0.0	14.0	4.2	H	A	30%
Food Security Programme for Malawi 2004-2009	EU	Agric	0.0	0.0	0.0	0.0	19.8	0.0	0.0	0.0	19.8	4.0	M	A	20%
CRS-WALA: LAND AND WATER MANAGEMENT	USAID	Water	11.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	11.5	3.5	H	A	30%

Brief details of some of the more important current projects are provided in Box 1 below.

Box 1 Important CC Projects and Programmes Currently Active

The following are the most important CC projects and programmes. Total expenditure on SRBMP, PRIDE, MFERP and MDRRP is MWK 292.9bn and, with an average programme length of 5 years, this is roughly MWK 60bn annually. The combined contribution of the four largest projects and the LDF is therefore about MWK 60m per year, which is just over 20% of total CC expenditure.

The Local Development Fund (LDF) is financed as Vote 272 in the budget and is an Inter-Governmental Fiscal Transfer Mechanism (IGFTM) by which central government transfers resources equitably to local government. It is administered by MFEPD and also receives donor funds for specific purposes. In FY17, the LDF received MWK 28.7bn in the revised estimate, of which 28.4bn was from international finance and 0.4bn was domestic finance. The LDF has four 'windows': the Performance Window builds local government capacity, including paying some salaries; the Urban Window invests is socio-economic infrastructure; the Local Authority Window is used for social policy and includes MASAF and Recovery Public Works Programme (RPWP); and the Community Window funds community driven projects.

The Shire River Basin Management Project (SRBMP) is funded by WB with a budget of USD 136m (MWK 98.6bn) and runs to 2019. The programme focuses on hard and soft investment in integrated watershed management across the Shire River Basin.

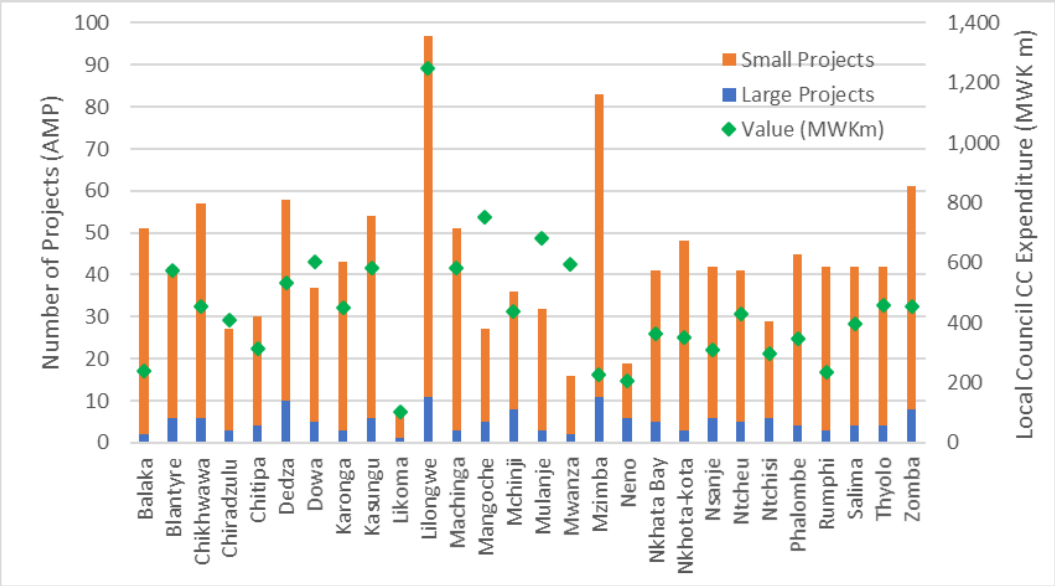
The Programme for Rural Irrigation Development (PRIDE) is funded by IFAD with a budget of USD 84m (MWK 60.9bn) and runs to 2022. PRIDE works with small farmers to improve land and water management and to improve marketing opportunities.

The Malawi Floods Emergency Recovery Project (MFERP) is funded by the WB with a budget of USD 80m (MWK 58bn) and runs to 2019. The project includes rehabilitation of infrastructure, restocking the Strategic Grain Reserve and building disaster management capacity.

The Malawi Drought Recovery and Resilience Project (MDRRP) is funded by the WB with a budget of USD 104m (MWK 75.4bn). MDRRP focuses on agricultural productivity, irrigation, water resource infrastructure and management and the possible diversion of some project resources for rapid humanitarian response, if required.

District Expenditure in the AMP. The AMP database includes a column that records the districts in which each project is active. The total project expenditure is not allocated by district and it seems too crude to assume that the expenditure is allocated equally to all districts, or in proportion to population. Figure 23 shows the number of projects active in each district, according to the AMP database, along with the total national project expenditure for all the projects active in each district. Most districts have received 20 to 45 CC projects and these projects have national CC expenditure of MWK 400m to 700m in FY17. Balaka has many projects, compared to the local budget, but these are mostly small projects (ie less than USD 100,000). Mzimba is a significant outlier, with a relatively low CC budget, but with many CC projects, including over 10 large projects. A few districts have received relatively few projects (ie Dowa, Mangoche, Mulanje and Mwanza), compared to their CC budget and this is especially marked for Mwanza, which also has only 1 large project.

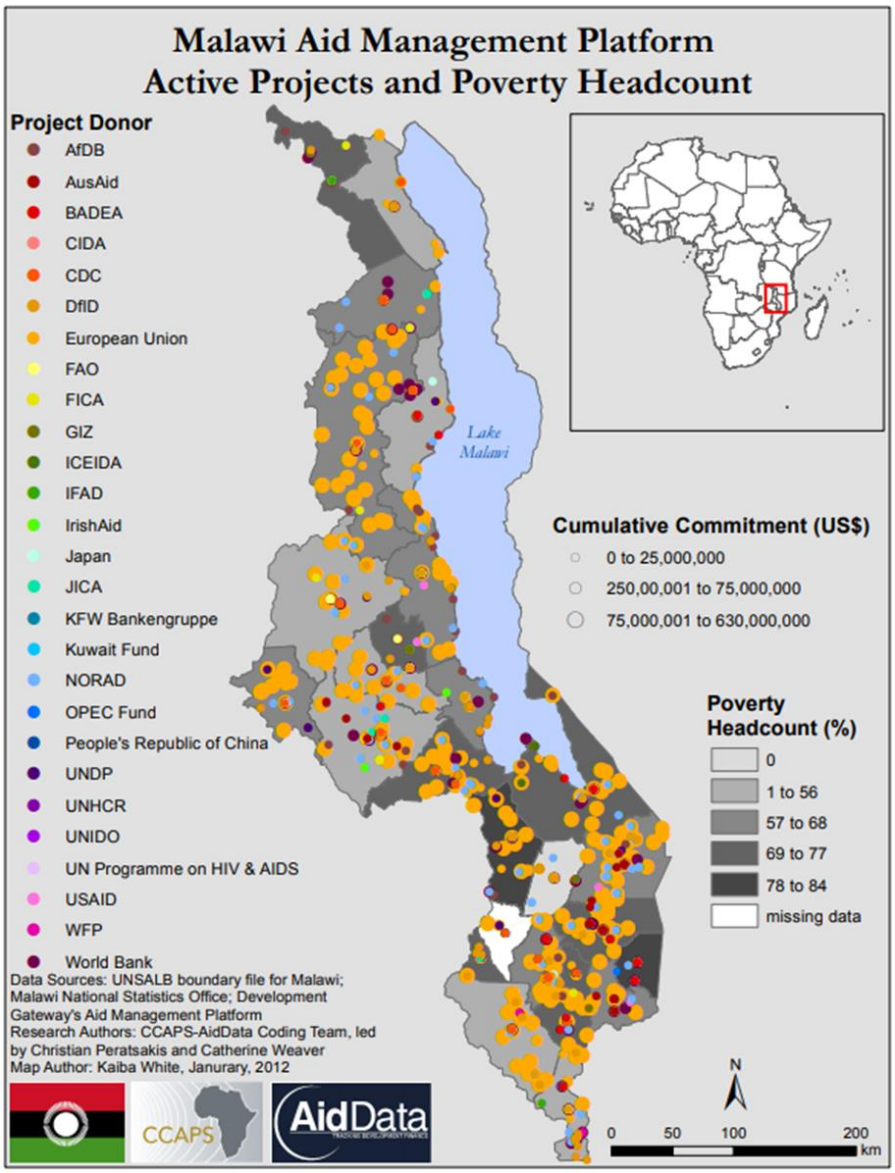
Figure 23 Number of Projects (AMP) Marked as Active in Each District (MWK m, FY17)



Source: AMP District Coding Information

Figure 24 presents the results of a similar exercise done in 2012 by the CC and African Political Stability (CCAPS) programme in Malawi, using the AMP data and a more detailed geo-coding exercise.

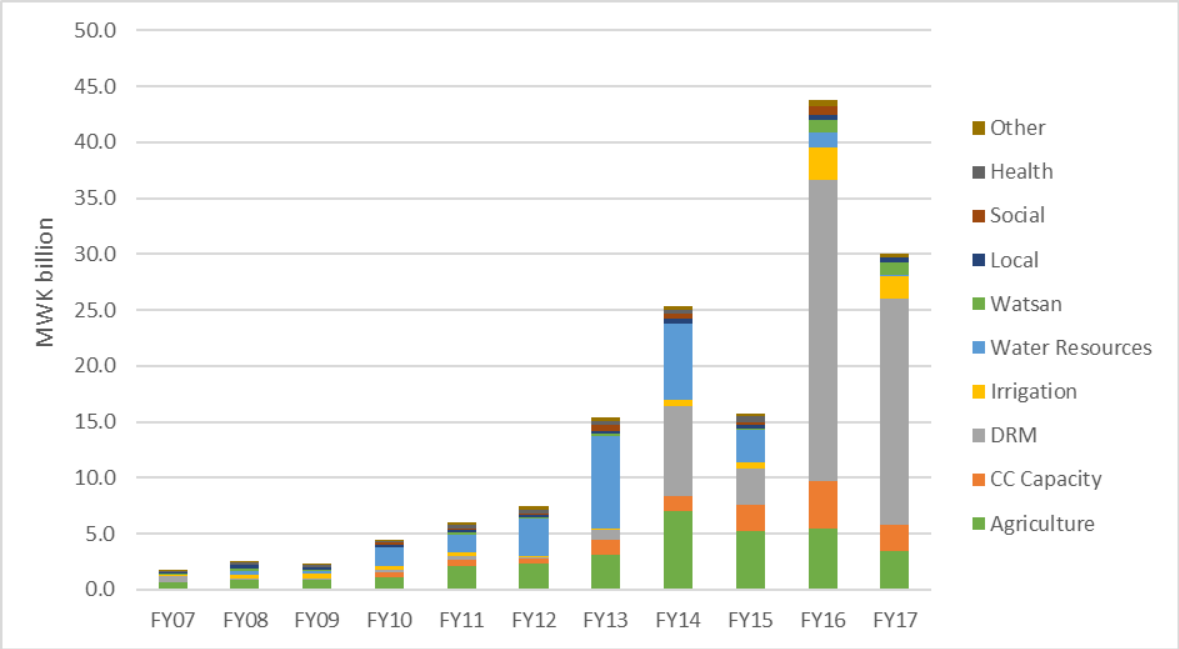
Figure 24 Geographical Distribution of AMP Active Projects and Poverty



Source: CCAPS 2012

<u>CC Expenditure Weighted by ABS.</u> Figure 25 presents the internationally funded climate expenditure after multiplying by the ABS, using the same methods as used for Figure 17 on page 27. As with expenditure in the budget, the weighted expenditure gives similar trends to the unweighted expenditure, but the relative contribution of different sectors is different, with more weight given to the most CC relevant expenditure. Figure 25 can also be used to estimate the Adaptation Gap, as was done using Figure 17 on page 27. Total weighted CC expenditure from internationally funded sources was MWK 30bn in FY17, compared to just over MWK 16bn for climate expenditure funded under the budget, suggesting that, when international funding is taken into account, the estimate of the Adaptation Gap may be closer to 80% than 90%. However, the higher levels of international funding are largely accounted for by DRM expenditure and the role of DRM in reducing the Adaptation Gap needs more careful assessment, which would need to include a strategic approach to the optimum mix of climate sensitive development and humanitarian expenditure in adapting to CC.

Figure 25 Internationally Funded CC Expenditure Weighted by ABS



Source: AMP

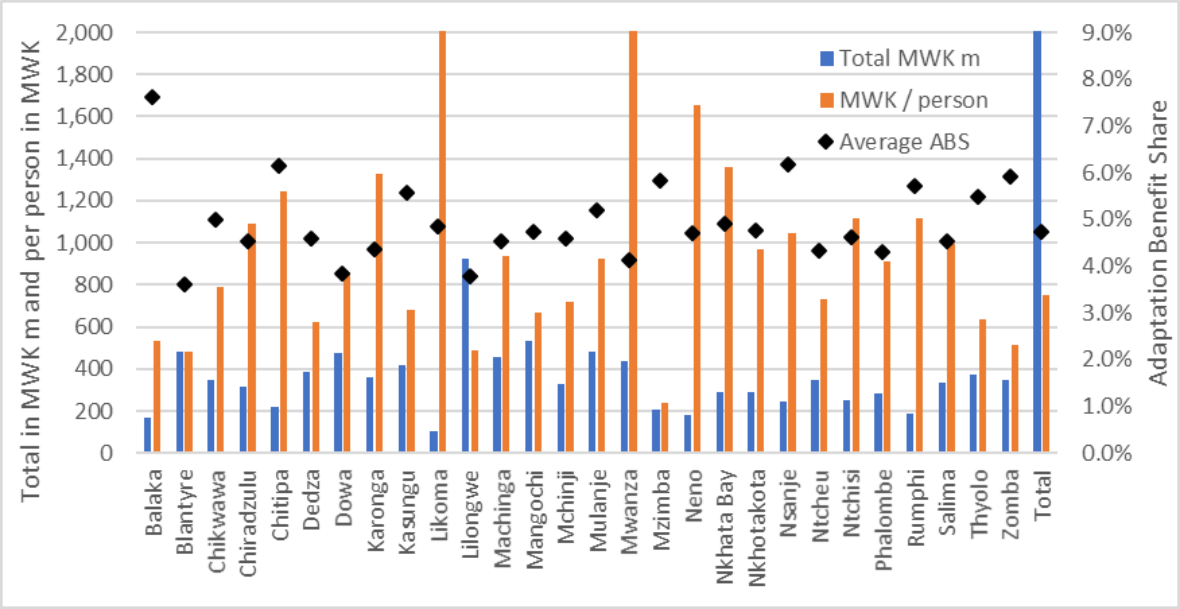
3.5 Local Councils

Data on expenditure by Local Councils (LCs) is provided by NLGFC and covers both budget and actual expenditure. The data is available both for annual figures and monthly details. As with the national level data, the most precise classification of expenditure comes from the sub-programme level of details, but this is only available for the FY17 budget. For other years, and for actual expenditure, NLGFC report expenditure according to what they term 'programmes' although these are different to the programmes in the national programme budget. To avoid confusion, this CPEIR refers to the NLGFC programmes as 'LC themes'.

LC Expenditure by Sub-Programme. The NLGFC data by sub-programme for the FY17 budget shows a total expenditure by district and town councils MWK 52.1bn in FY17, of which 32.3bn is for district councils and 19.8bn for town councils. This compares with a budget for Local Councils in AFS Annex 2 of MWK 38.8bn in the FY17 AE and MWK 109.8bn in the FY17 RE. The reason for the difference is not clear.

Figure 26 shows the total spending of each district (in MWK m) and the spending per capita (in MWK/person) using figures for the Revised Estimate for FY17. Expenditure by town councils is not included. The per capita figures for Likoma and Mwanza are greater than 2000 MWK/person, largely because of the relatively small population. There are eight districts with per capita spending of 1000 to 2000 MWK/person (ie Neno, Nkhata Bay, Karonga, Chitipa, Chiradzulu, Ntchisi, Rumphi and Nsanje), most of which have populations of between 100,000 and 300,000.

Figure 26 Total CC Expenditure (Unweighted, FY17 Local Council Budget)

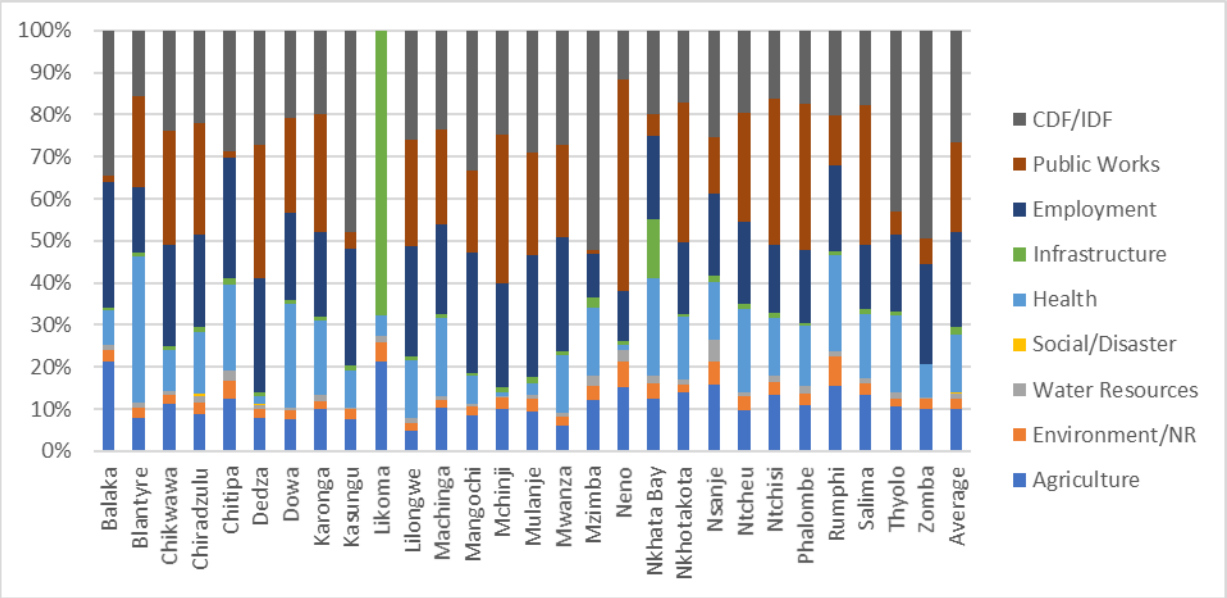


Note: Likoma (9743 MWK/person) and Mwanza (6315 MWK/person) are off the scale of the graph.
Source: NLGFC Local Council Budgets

Nearly half the LC district budget for the whole of Malawi is for health and education, which has very little CC relevance. Much of the remainder of the LC district budget is CC relevant and 39% of total LC district budget was classified as having some degree of CC relevance. This share varies considerable between districts. The districts with over 45% of total expenditure being CC relevant are: Chiradzulu, Karonga, Likoma and Mulanje. The districts with less than 35% of total expenditure being CC relevant are: Balaka, M'mbelwa, Ntcheu, Rumphi and Zomba.

The composition of CC expenditure in Local Councils is presented in Figure 27. The Constituency Development Fund and Local Development Fund typically account for 20 to 30% of CC expenditure and public works (under Local Authority Services) also typically account for 20 to 30%. Employment is also an important part of CC expenditure. This has not traditionally been included in past CPEIRs and is included only because recent research suggests that the impact of heat stress on labour productivity could be the most significant impact of CC and labour policy is the most effective way of reducing that impact. Health and agriculture are both important, usually with 10 to 20% of total CC expenditure each.

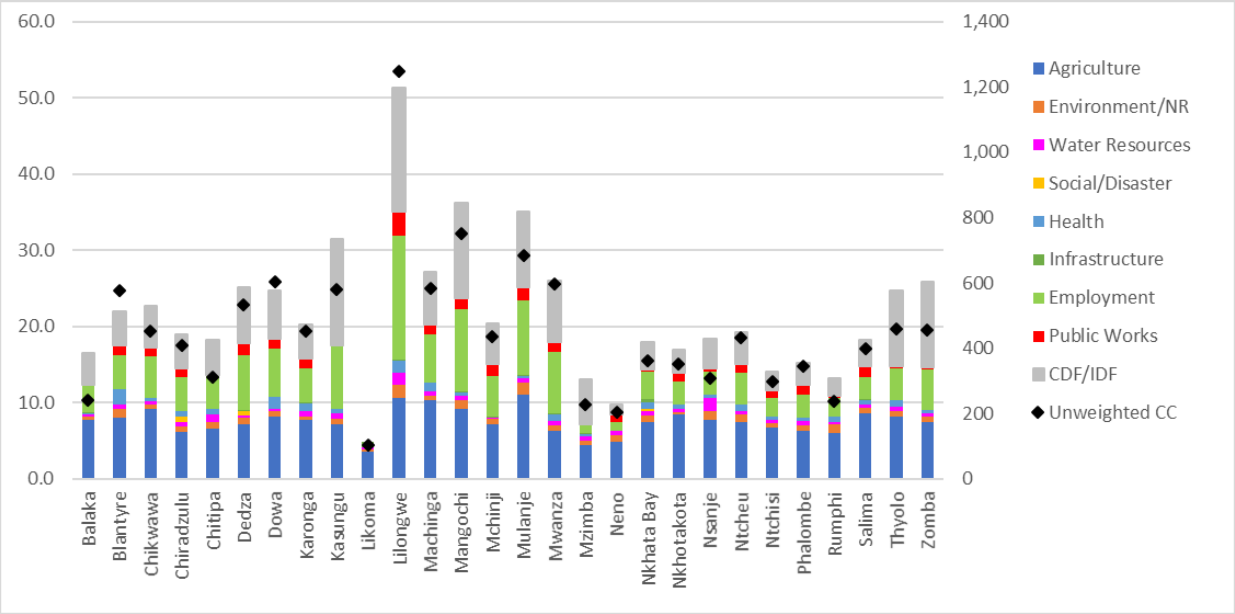
Figure 27 Composition of CC Expenditure (Unweighted, FY17 Local Council Budget)



Source: NLGFC Local Council Budgets

<u>CC Expenditure Weighted by ABS.</u> As with most CPEIR analysis, relying entirely on the 'raw' unweighted CC expenditure means that patterns are dominated by high-spending projects that may make a very small contribution to adaptation (eg in health and roads). The Adaptation Benefit Share can be used as a weight to give a more balanced basis for comparison of CC expenditure between areas and over time. This is most reliable when the expenditure data is available at sub-programme level, since the ABS classification is more precise. When the FY17 LC budget is weighted by the ABS, the patterns of total CC expenditure across districts are similar because the composition does not change greatly. However, the relative importance of the sub-programmes is very different, with agriculture, employment and the CDF/LDF accounting for about 90% of CC weighted expenditure in most districts. This is shown in Figure 28.

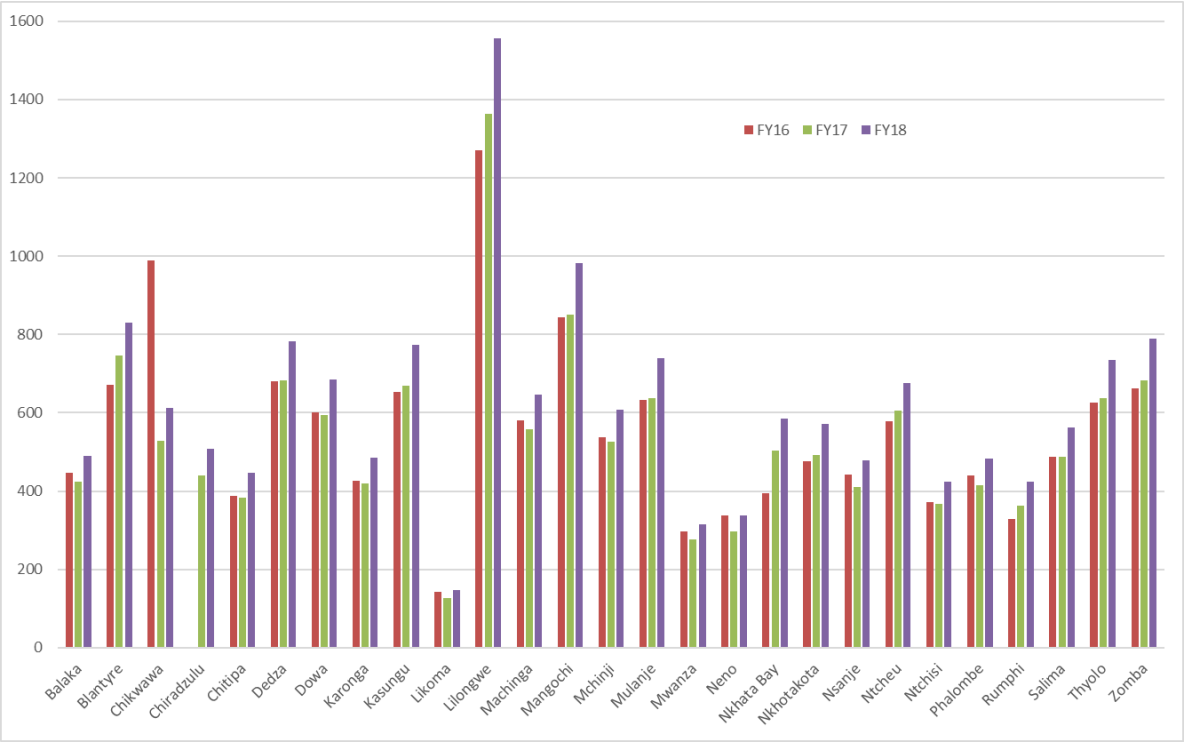
Figure 28 CC Weighted Expenditure (MWK m, FY17 Local Council Budget)



Source: NLGFC Local Council Budgets

LC Expenditure over the Last Three Years. Because NLGFC provided sub-programme data only for the FY17 budget, it is necessary to rely on data broken down by 'LC Theme' to provide an indication of trends over the last three years. Figure 29 shows the change in CC budget over the last 3 years for each district. In all districts except one (Chikwawa), the CC budget in FY18 was higher than in FY16. In 14 districts, there was a growth in CC budget in both FY17 and FY18 and in 13 districts there was a reduction in FY17, followed by an increase in FY18.

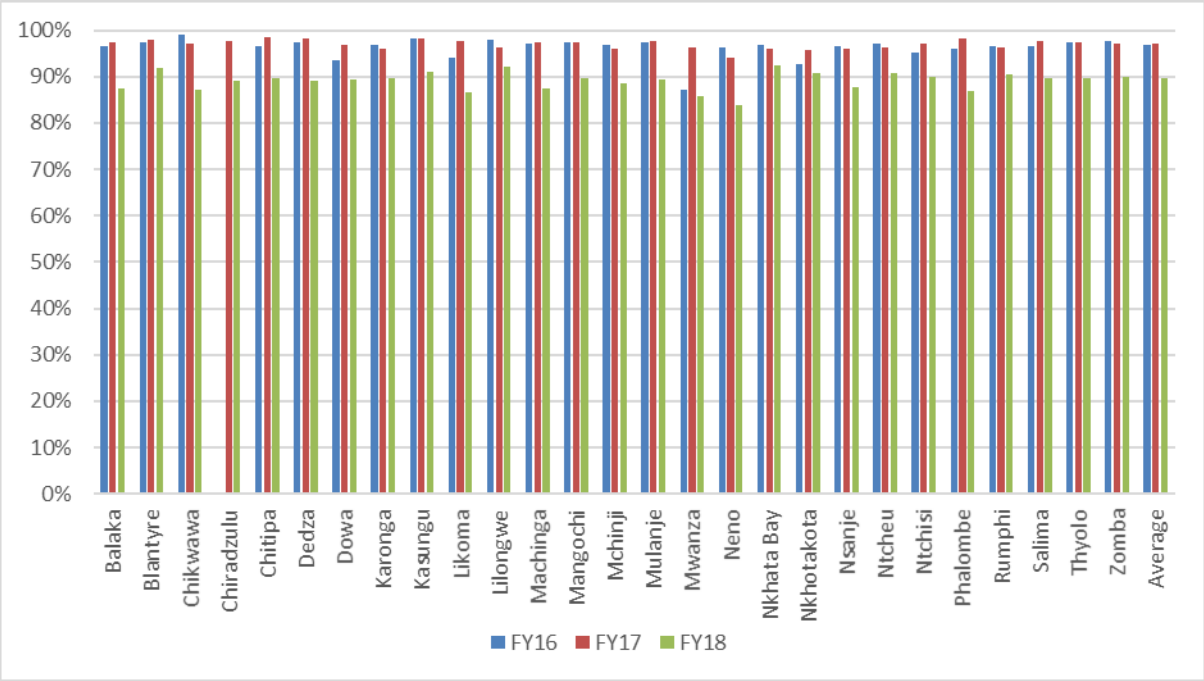
Figure 29 CC Relevant expenditure by District FY16 to FY18 (MEK m)



Source: NLGFC data at LC Theme level

Funding Rate. NLGFC also provide data for the funding transferred from the NLGFC, as well as the budget data, and this allows for a comparison of the funding rate (ie the actual provision of funds to LCs, compared with their budget). There is no data available on whether LCs have actually spent the funds that were provided to them by NLGFC and so it is not possible to determine the disbursement rate by LCs. Figure 30 presents the funding rate for FY16, FY17 and FY18 and shows that, in FY16 and FY17 almost all districts had funding rates of over 95%. The funding rate dropped to between 85% and 90% for FY18.

Figure 30 Funding Rate of Local Council Expenditure



Source: NLGFC data at LC Theme level

3.6 Zomba, Ntcheu and Nkhata Bay

Between 24 September and 3 October 2018, visits were made to Zomba, Ntcheu and Nkhata Bay. The main focus of these visits was to work with district officials to understand the implications of CC for the effectiveness of their programmes. The results of this work are reported in chapter 4. As part of the consultation, some data was collected on public expenditure in the districts. This section describes the data and compares it with the data for the three districts from Local Council (LC) budgets provided by the NLGFC and with the AMP data. The tables below describe the total expenditure and provide an assessment of the degree of CC relevance and the Adaptation Benefit Share (ABS), using the methodology described in section 1.5 and the default ABSs in Table 4.

Data Provided to the CPEIR. The three district planning offices for Nkhata Bay, Ntcheu and Zomba provided data on the actual expenditure on 34 projects active in their districts. Nkhata Bay provided data for FY17 for 12 projects, of which 6 were assessed by the CPEIR as contributing to adaptation. Ntcheu provided data for FY16 and FY17 for a list of 7 projects, all of which contributed to adaptation. Zomba provided data for FY15 to FY17, which covered 26 projects, of which 16 are likely to have contributed to adaptation.

Table 13 presents the expenditure by districts, as reported to the CPEIR. In FY17, the total expenditure was MWK 1086m in Nkhata Bay, 406m in Ntcheu and 2268m in Zomba. It is not clear why the expenditure in Ntcheu was so much smaller than in the other two districts, but the absence of MASAF Social Cash Transfers in Ntcheu is a major difference. Some of the most significant contributions to adaptation included the following projects: the Shire River Basin Management Programme, MASAF public works and MFERP in Ntcheu and Zomba; ADAPT PLAN in all three districts; MASAF social cash transfer in Nkhata Bay and Zomba; and the Irrigation Rural Livelihoods and Agricultural Development Project (IRLAD) in Zomba.

Table 13 CC Expenditure in Nkhata Bay, Ntcheu and Zomba, as reported by the District (MWKm)

	Donor	CPEIR Class.		Nkhata Bay			Ntcheu			Zomba		
		HML	ABS	FY15	FY16	FY17	FY15	FY16	FY17	FY15	FY16	FY17
Programmes in Several Districts												
Shire River Basin Mangt Prog.	WB	H	25%					179.9	44.7	0.0	28.5	27.7
MDRRP (Drought Recovery ...)	WB	H	25%					0.0	0.0	0.0	0.0	25.9
MFERP (Flood Recovery ...)	WB	M	15%					22.7	17.7	0.0	68.5	41.3
Sustainable Rural Water Project	AfDB	M	15%					0.0	46.4			
ADAPT PLAN	UNDP	H	25%			199.9		37.4	77.7	0.0	35.8	230.4
LDF Public Works - MASAF	WB	H	25%					561.6	219.1	315.7	467.3	344.5
LDF Social Cash Transfer - MASAF	WB	L	10%			631.1				0.0	889.5	924.3
DDF – Borehole fund	GoM	H	25%					0.0	0.0	0.0	0.0	96.0
UNICEF SOCIAL	UNICEF	L	5%			73.4				30.3	23.9	95.2
Disaster Relief	?	H	25%			0.6				2.1	3.8	0.0
COMSIP (Community Savings ...)	Multi	L	10%			3.8				0.0	0.0	0.0
DARSHP - MALATA (Training ...)	Multi	N				13.3				0.0	41.5	5.7
Programmes in Only One District												
Youth and Environment	AfU?	L	5%					0.0	0.0			
Agriculture SWAP	WB?	M	15%							20.5	53.3	0.0
District Health Office	UNICEF	N								119.9	50.7	0.0
TEVETA (Vocational Training)	EU?	N								0.2	1.6	0.0
District Health Office	UNDP	N								21.5	13.7	0.0
Road Grading	GoM?	N								7.5	0.0	6.7
IGPWP (Public Works ...)	EU?	L	10%							2.5	0.1	0.0
IRLAD (Irrigation, Livelihoods ..)	IFAD	H	25%							208.4	13.7	0.0
Food and Nutrition (Schools ...)	WFP	N								0.0	19.7	0.0
CDF (Constituency Devt Fund)	GoM	L	5%							0.0	0.0	203.0
SOCIAL-ECONOMIC	?	?								0.0	0.0	1.3
PRIDE (Rural Irrigation)	IFAD	H	25%							0.0	0.0	13.7
DEVELOPMENT	?	?								0.0	0.0	67.2
Locally Generated Revenue	GoM	N								0.0	0.0	82.8
ZOMBA DHO DISCRETE	GoM?	N								0.0	0.0	24.8
CHIEFS HONORARIUM	GoM	N								0.0	0.0	77.7
National Aids Commission	Multi?	N				0.3						
NLGFC	GoM	N				5.2						
Health Services Joint Fund	Norway?	N				8.8						
MACRA (Communications ...)	GoM?	N				0.4						
ESCOM (Electricity Supply)	ESCOM	N				107.1						
Population Programmes	UNFPA					42.1						
Total All Expenditure						1,086		802	406	381	1,711	2,268
Total CC Expenditure						909		802	406	579	1,584	2,002
Total Weighted by ABS						117		198	95	136	246	298

Note: The following programmes were operating in Nkhata Bay, but no expenditure data is yet available from the District Council: PRIDE, AiYAP, KULIMA, AFIKEPO

Source: data provided to CPEIR by District Councils

Half the projects for which data was provided were judged to make a contribution to adaptation and/or mitigation. The 17 CC projects included most of the larger projects and accounted for 90% of the total public expenditure listed. The CC projects had a range of CC relevance, with 8 having high CC relevance, 3 mid CC relevance and 6 low CC relevance. The average ABS for all expenditure was 17%, reflecting the fact that most of the largest projects were high CC relevance.

Local Council Budgets. Table 14 shows the budget for the 23 CC relevant sub-programmes, which account for between 34% and 36% of total LC budget.

Table 14 Local Council Budget on CC Related Sub-Programmes (FY17 RE)

	CPEIR Class.		Local Council Budget (MWK m)		
	HML	ABS	Nkhata Bay	Ntcheu	Zomba
01. Agriculture and Food Security					
01. Irrigation Services	H	25%	6.8	7.0	7.1
02. Crop production and management	M	15%	19.8	20.3	21.7
03. Agribusiness Development	L	5%	0.0	0.0	1.0
04. Fisheries and Aquaculture Services	L	10%	8.7	3.7	7.3
05. Agro-processing	L	5%	0.0	0.0	0.0
06. Animal and Livestock Management	L	10%	3.1	2.1	0.0
07. Agricultural Extension	M	15%	6.6	7.7	4.5
08. Regulatory Services	L	5%	0.0	1.1	4.3
09. Food Security	M	20%	0.0	0.0	0.0
02. Natural Resources and Environment Management					
01. Pollution and waste Management	L	10%	0.0	1.7	0.0
02. Forestry Management	M	15%	5.2	6.2	5.1
03. Land Resources	L	5%	0.0	0.5	0.3
05. Environmental Services	L	10%	8.7	5.8	5.1
04. Water Resources Development, Management and Supply					
01. Water Supply and Sanitation	M	15%	5.8	3.9	0.8
02. Water Resources Development	M	15%	0.0	0.0	1.2
06. Social Protection and Disaster Management					
01. Disaster Preparedness, Relief and Rehabilitation	H	25%	0.9	0.0	0.0
02. Social Protection Services	L	5%	0.0	0.0	0.0
07. Health Services					
02. Nutrition Services	L	5%	0.0	28.1	0.0
08. Environmental Health	N		0.0	2.1	0.0
10. Malaria	L	5%	0.0	0.0	0.0
10. Transport, Building and Housing					
01. Building and Housing Services	L	5%	4.9	4.8	0.0
05. Road Transport Services	N		45.0	0.0	0.0
06. Urban Infrastructure Services	L	5%	0.0	0.0	0.0
18. Employment, Manpower Development and Labour Affairs					
02. Occupational Safety and Health Service	N		72.0	84.0	108.0
50. Local Authority Services					
03. Enginering/(Public works)	N		19.3	112.1	26.6
53. Constituency Development Fund					
Per District	L	1%	72.0	84.0	108.0
55. Infrastructure Development Fund					
01.Infrastructure Development Fund	L	1%	0.0	0.0	117.1
Total CC Relevant			363.1	431.3	454.3
Total weighted by ABS			10.6	11.3	10.5
Total Expenditure, including non-CC			1006.3	1251.3	1323.1
CC relevant as % of total			36.1%	34.5%	34.3%

Note: several sub-programme have been included without classification because it is unclear from the sub-programme titles whether there is a significant contribution to adaptation and/or mitigation.

Source: NLGFC Local Council Budgets

Table 14 shows that the largest number of CC projects and expenditure is for agriculture and food security sub-programmes. Forestry, environment and water resources are also important in all districts. There are three large programmes that are included in the list but without any CC classification because only a small part of their activity is likely to be CC relevant: road transport could include some proofing work to make the roads more resilient to extreme rainfall and flooding; occupational health and safety could include some activities to address heat stress and labour

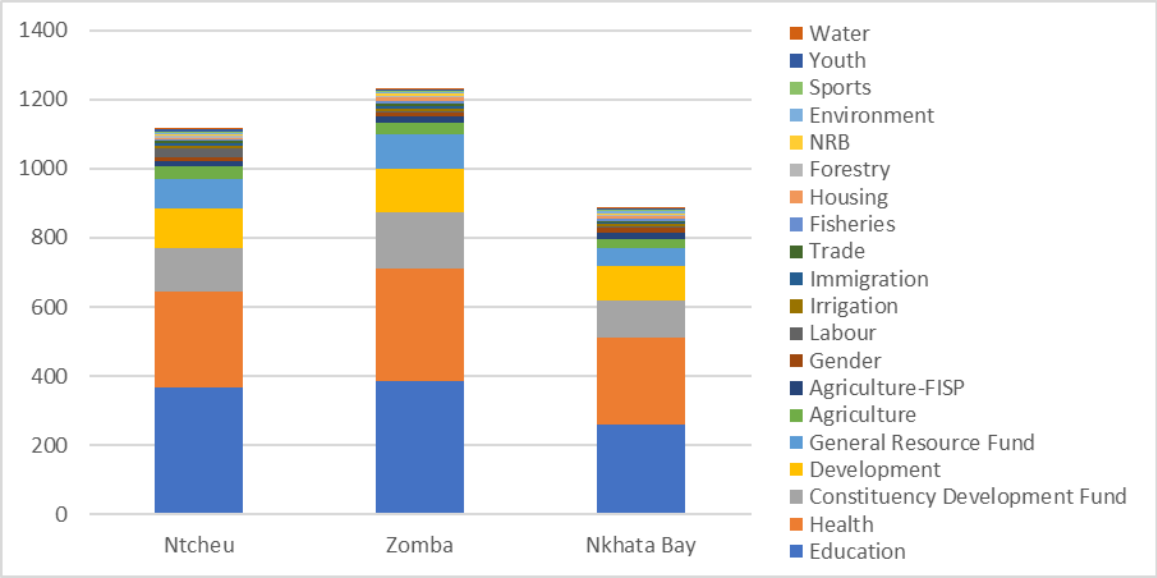
productivity; and engineering for public works could also include some elements of proofing. More work is required about the nature of the activities in these sub-programmes.

For other years, NLGFC data was provided with a functional breakdown of only 21 'LC themes', of which 10 have some CC relevance. The extra detail in the sub-programmes for the FY17 budget allows for a more precise classification, but the absence of this data for other years means that it is only possible to show trends using the LC themes.

Figure 31 describes the composition of sectoral expenditure by the LCs in the three districts. In all the districts, more than half the expenditure is for health and education and this makes only a very limited contribution to adaptation, mainly through the prevention and cure of climate-sensitive diseases, such as diarrhoea and malaria. However, as these diseases already pose a heavy burden, and the impact of CC is uncertain and may involve an increase of only about 10% by 2050, the adaptation element of this expenditure is small (WHO 2009).

The expenditure that is more focused on CC includes: agriculture, labour, irrigation, fisheries, forestry, environment, water and, potentially, housing. These sectors account for between 7% and 10% of total expenditure in all District Councils. They are, therefore, a significant element of expenditure, but not the most important priorities for the three districts.

Figure 31 Composition of District Council Expenditure in Pilot Districts (MWK m, 2016 and 2017)



Source: NLGFC Local Council Budgets

AMP Data. The AMP includes a field that identifies the districts in which projects are active. This field is filled in by donors when they make entries in the AMP and it is not clear whether all donors fill in the field in a comprehensive way. The projects recorded as being active in Nkhata Bay, Ntcheu and Zomba are listed in Table 15. No information is provided in AMP on the allocation of the total project expenditure to the districts and the expenditure figures reported in Table 15 are the totals for the whole country, not for the three districts. Four totals are presented for each district:

A. The gross total of all expenditure across Malawi of any project that is active in the district. This is included for the sake of completeness and gives a broad indication of the size of the project in general. However, it gives very limited evidence of spending in each district.
B. The total expenditure assuming that expenditure is apportioned equally to all districts in which a project is active. This is a very crude assumption but the CPEIR has not had time to consult with districts, project management and donors to obtain better data.

C. The expenditure that has some CC relevance, assuming equal apportionment per district.
D. The CC expenditure assuming equal apportionment per district, but weighted by ABS, using the principles described in section 1.5 and the ABS values in Table 4.

Table 15 presents the projects that are identified in AMP as being active in the three districts over the period FY15 to FY17: Nkhata Bay has 19 projects, of which 7 are CC projects; Ntcheu has 9 projects of which 5 are CC; and Zomba has 14 projects, of which 7 are CC. The challenges faced in establishing consistency between data sources are well illustrated by the fact that none of the projects listed in the AMP as being active in Nkhata Bay, Ntcheu and Zomba were identified by the district officials during this CPEIR as being key adaptation projects. This is likely to be mainly because the projects are managed by Project Management Units that may cooperate with district governments on an operational level but do not share financial data.

Table 15 Data on District Expenditure in AMP (FY15 to FY17)

	Donor	CPEIR Sector	Expenditure (MWKm) FY15	FY16	FY17	CPEIR Class. HML	ABS	Number Districts
Nkhata Bay								
Small Farms Irrigation Project -phase I & II	BADEA	Irrig	98	61	137	H	30%	2
Agricultural Extension Support Programme - Support to Liv	Flanders	Agric	126	0	0	M	15%	6
Farm Income Diversification Programme II PE 3	EU	Agric	1297	0	0	M	15%	12
Farm Income Diversification Programme (FIDP) Phase II To	EU	Agric	173	0	0	M	15%	12
Farm Income Diversification Programme (FIDP) Phase II - P	EU	Agric	0	583	0	M	15%	12
The Project on Sustainable Land Management Promotion	JICA	Env	340	0	0	M	15%	3
Support to WFP for CMAM - Supplementary Funding Progra	Ireland	Health	230	197	432	V	1%	2
Other non CC projects[1]			11784	10295	624	N		
A: Gross total (all-Malawi expenditure each project)			14048	11136	1193			
B: Gross total assuming equal expenditure per district			4431	1797	378			
C: Total CC assuming equal expenditure per district			421	178	284			
D: C weighted by ABS			54	17	23		11%	
Ntcheu								
Irrigation Engineer Capacity Building Project for Sustainab	JICA	Irrig	0	0	115	H	30%	3
Enhancing Forests for Sustainable Livelihoods	EU	Forest	0	508	287	H	20%	5
Strengthening Farmer organizations and Rural Structured T	Flanders	Agric	533	428	305	L	5%	10
Strengthening Farmer Organizations and Rural Trade Mech	Flanders	Agric	478	0	379	L	5%	10
Local Development Support Programme (Concern Universa	Ireland	Local	1188	814	0	L	5%	2
Other non-CC projects[2]			256	1619	5			
A: Gross total (all-Malawi expenditure each project)			2455	3370	1090			
B: Gross total assuming equal expenditure per district			708	737	164			
C: Total CC assuming equal expenditure per district			695	552	164			
D: C weighted by ABS			35	43	26		7%	
Zomba								
Lake Chilwa Basin Climate Change Adaptation Programme	Norway	CC	644	543	0	H	30%	3
Planning for Climate Change	EU	CC	304	266	207	F	100%	4
Strengthening Community Resilience to Climate Change in I	EU	CC	1289	0	898	H	30%	4
Enhancing Forests for Sustainable Livelihoods	EU	Forest	0	508	287	H	20%	5
Integrated Rural Development	UNDP	Local	357	326	132	M	15%	7
Strengthening Farmer organizations and Rural Structured T	Flanders	Agric	533	428	305	L	5%	10
Strengthening Farmer Organizations and Rural Trade Mech	Flanders	Agric	478	0	379	L	5%	10
Other non-CC projects[3]			2400	3278	70			
A: Gross total (all-Malawi expenditure each project)			6005	5349	2277			
B: Gross total assuming equal expenditure per district			981	720	432			
C: Total CC assuming equal expenditure per district			765	439	421			
D: C weighted by ABS			250	150	137		33%	

[1] Other projects in Nkhata Bay include: 1 road, 3 education , 4 health and 1 disability
[2] Other projects in Ntcheu include: 1 road, 2 education and 1 health
[3] Other projects in Zomba include: 1 governance, 1 prison, 2 education, 1 legal and 2 health

Source: AMP

Comparing CPEIR, NLGFC and AMP Data for Local Councils. Table 16 compares four sources of evidence on CC expenditure in the three districts. Because of the different definitions of the data,

there should no expectation that all the sources would report the same figures and the table is included only to help understanding about the significance of having common definitions, in future. Key differences are as follows.

The CPEIR data referred specifically to the expenditure on projects that the DPI in the district considered to be most important. It did not cover LC budgets. In theory, the totals refer to similar expenditure to that covered by the AMP data, but there are three reasons why this might be different.

a) The AMP data only includes the geo-codable projects, where donors have entered the districts in which projects are active (so there are probably projects that are active in Zomba but have not be coded as such in AMP).
b) The AMP data assumes that total project expenditure is apportioned equally to all districts where projects are recorded as active, which is clearly a major simplification.
c) The CPEIR data covered only those projects that share expenditure data with the district government.

The NLGFC data refers to the use of the transfer from central government. It does not cover funds spent by central ministries in the districts or spending by projects in the districts. Using sub-programmes as the basis for CC classification results in lower estimates of CC expenditure than using the LC Themes used by NLGFC. This is probably because there are a few large LC Themes with low ABSs, but which are strongly affected by the ABS (eg whether it is assigned as 1%, 2% or 5%).

The AMP data covers only donor funding for the projects that have been geo-coded as being active in the district. The data presented is the result of assuming that projects that are active in more than one district apportion their funds equally to each district. The AMP data for FY18 is probably incomplete because some donors have not yet entered all data.

Table 16 Comparison of Data Sources on Nkhata Bay, Ntcheu and Zomba

	Nkhata Bay			Ntcheu			Zomba		
	FY16	FY17	FY18	FY16	FY17	FY18	FY16	FY17	FY18
Total Expenditure									
CPEIR		1086		802	406		1711	2268	
NLGFC - sub-programme		1006			1251			1323	
NLGFC - LC Theme[1]	681	925	1040	983	1160	1293	1053	1267	1427
AMP apportioned[2]	4431	1797	378	708	737	164	981	720	432
Total CC Expenditure									
CPEIR		909		802	406		1584	2002	
NLGFC - sub-programme		363			431			454	
NLGFC - LC Theme[1]	395	503	586	579	605	676	662	682	790
AMP apportioned[2]	421	178	284	695	552	164	765	439	421
CC Expenditure Weighted by ABS									
CPEIR		117		198	95		246	298	
NLGFC - sub-programme		11			11			11	
NLGFC - LC Theme[1]	26	34	0	30	37	0	33	41	0
AMP apportioned[2]	54	17	23	35	43	26	250	150	137

[1] The NLGFC data refers to 'Programmes' but these are different to the programme budget

[2] Totals for AMP assume equal project expenditure per district for each project

3.7 Consistency between Data Sources

Overview. Table 17 shows that, according to the AFS, MKW 258bn (ie 23% of the total budget, equivalent to 6% of GDP) makes some contribution to adaptation or mitigation. Of this climate expenditure, just over half comes from development projects (MWK 139bn) and the rest from recurrent expenditure (MWK 119bn), with about 75% of the recurrent spending being covered by the transfer to local government. Funding for CC development expenditure comes roughly equally from grants than loans. Local Council accounts for 4.6% of total expenditure and 7.8% of CC expenditure. The local climate expenditure is split roughly equally between districts and towns.

The AMP database includes MKW 173bn of climate expenditure, which is MWK 34bn higher than in the AFS. This is partly because the AMP data includes expenditure on flood and drought relief, which was especially high in FY16 and FY17. It might, therefore, be reasonable to estimate that total climate expenditure in FY17 was MWK 292bn (ie 258bn from the AFS plus the additional 34bn from the AMP). This assumes the DRM expenditure is included in climate expenditure.

Table 17 Climate Expenditure in the AFS and AMP (FY17, MWK bn)

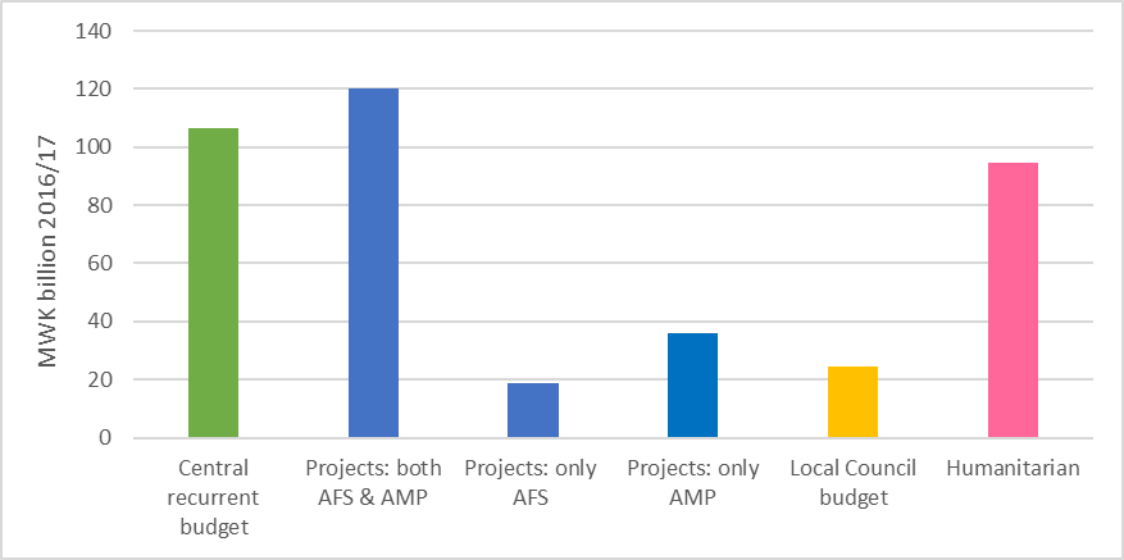
	Total Expenditure			Total CC Expenditure		
	MWK bn	% Total	% GDP	MWK bn	% Total	% GDP
AFS Annex 7 Programmes (budget)						
Total Expenditure	1,137	100.0%	24.7%	258	22.7%	5.6%
AFS Annex 6 Projects (budget)						
Total	241	21.2%	5.2%	139	12.2%	3.0%
Domestic funded	29	2.5%	0.6%	6	0.5%	0.1%
Foreign funded	209	18.4%	4.5%	133	11.7%	2.9%
Grant	100	8.8%	2.2%	63	5.6%	1.4%
Loan	114	10.0%	2.5%	70	6.2%	1.5%
AMP Foreign Funding (actual disbursement, including DRM)						
Total	247	21.8%	5.4%	173	15.2%	3.8%
On budget	26	2.3%	0.6%	27	2.4%	0.6%
Off budget	222	19.5%	4.8%	147	12.9%	3.2%
HLGFC Local Council Budgets (budget, included in AFS 7)						
Total	52	4.6%	1.1%	24	2.2%	0.5%
Districts	32	2.8%	0.7%	13	1.1%	0.3%
Towns	20	1.7%	0.4%	12	1.0%	0.3%

[1] There are small values for domestic financing that are defined as grants or loans, possibly because the domestic financing is treated as counterpart funding for a project that is mainly foreign funded.
[2] The figure for total Local Council budget expenditure in FY17 comes from the budgets provided by the NLGFC. The AFS has a figure of MWK 38.8bn in FY17 AB and MWK 109.8bn in FY17 RE.

However, the total climate expenditure is higher than MWK 292bn because there are some climate related projects in the AMP list that are not in the AFS and vice versa[16], and, for those projects that are in both the AFS and the AMP, the expenditure is different in each source, with the AFS usually having higher levels. This is explored further below. Figure 32 gives a best estimate of funding from the various sources, suggesting an estimate of climate expenditure of about MWK 388bn.

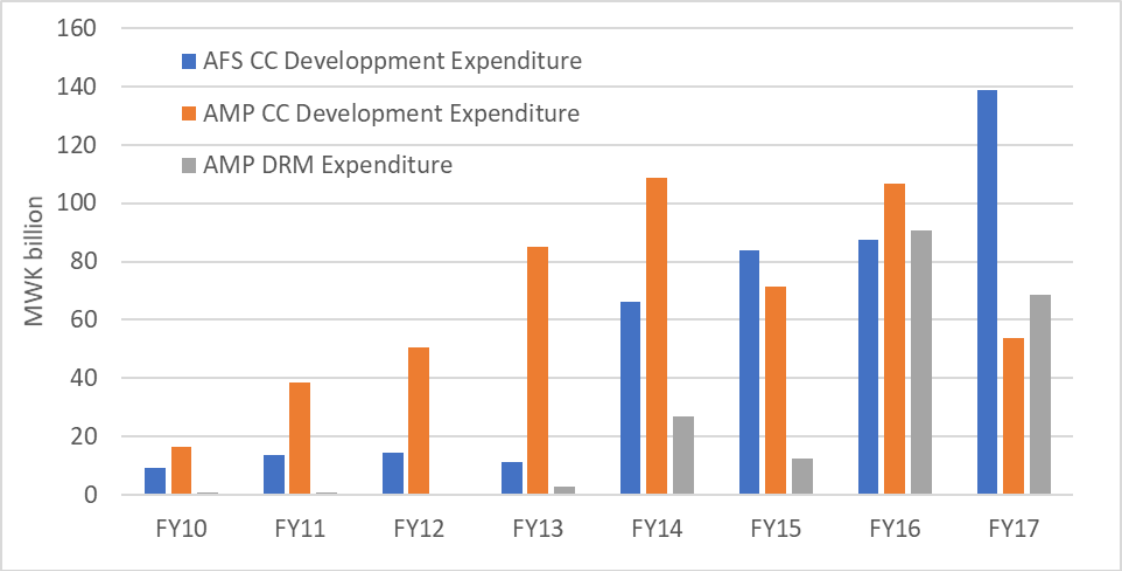
[16] A full consistency check between the AFS and AMP project lists would be complex, requiring verification of titles, dates and definition of commitments and budget estimates. This is beyond the scope of this CPEIR.

Figure 32 Climate Expenditure by Sources



Development Expenditure. Figure 33 describes the development expenditure that has contributed to adaptation and/or mitigation over the last eight years, according to AFS Annex 6 and the AMP. The figure illustrates the challenges of dealing with expenditure data in Malawi as the two sources give very different results. The rest of this section explores possible reasons for the differences in the data sources.

Figure 33 Climate Development Expenditure in the AFS and AMP



Source: AFS Annex 6 and AMP

Table 18 shows the overlap between the AFS project list and the AMP project list. The AMP list includes 1655 projects and the AFS list includes 290. This is partly because the AMP covers the period from FY07, which the AFS tables cover only the projects active in the individual year of each AFS (for the early AFSs), or in the AFS year plus the two previous years (for later AFSs). But it also reflects the fact that the AMP appears to include a larger number of projects. There are 102 projects that were classified as CC projects in the AFSs and 751 projects in the AMP. There were 38 projects in the AFS that were also in the AMP and 57 in the AMP that were also in the AFS[17].

[17] The number for AMP is higher than AFS because the AMP sometimes divided projects into different lines.

Table 18 Overlap Between AFS and AMP

In AFS				In AMP			
CC Projects		Non CC	Total	CC Projects		Non CC	Total
In AMP	Not in AMP			In AFS	Not in AFS		
38	64	188	290	57	694	904	1655

Table 19 shows the expenditure in each source, according to whether projects are listed in both sources or just in one source. To make the sources more comparable, the DRM projects are extracted from the AMP data. The table shows the extent to which the AFS budget expenditure is higher than the AMP reported disbursement. The differences could be caused either by optimistic budget figures in the AFS and/or because of poor disbursement rates for donor projects. It is also possible that reporting in the AMP may not be complete. This difference is despite the fact that the AFS is likely to have been prepared assuming a lower exchange rate than was actually used for disbursement, because of devaluation between the date when the budget was prepared and the dates when disbursement took place in the following year.

Table 19 Climate Expenditure of AFS and AMP

	AFS				AMP			
	FY14 Raw	**FY15 Raw**	**FY16 Raw**	**FY17 Raw**	**FY14 Raw**	**FY15 Raw**	**FY16 Raw**	**FY17 Raw**
DRM Projects					68	27	149	94
Total CC Development Projects	0	84	87	139	344	181	324	168
In AFS and AMP	56	79	76	120	45	32	64	18
In AFS not AMP	11	5	11	19				
In AMP not AFS					63	40	42	36

<u>Sectoral Shares.</u> Figure 34 and Figure 35 show the sectoral breakdown of climate related expenditure in the AFS and the AMP project list. The AFS figures for development expenditure are taken from the project list in AFS Annex 6. Recurrent expenditure is then estimated as the differences between the total expenditure in the sector, using the programme budget data in AFS Annex 7, and the development expenditure. As the way in which projects have been classified in the programme budget is not clear, the estimate of recurrent expenditure includes some uncertainty. The figure shows both the raw unweighted expenditure and the weighted expenditure, determined by multiplying the raw expenditure by the ABS, to capture the varying degrees of focus on CC.

The figure shows that the majority of raw recurrent climate expenditure is in: local development[18], much of which is used for health and education, according to the Local Council budgets; and in 'other sectors', which includes the marginal contributions made to adaptation in health and economic development. These items are both considered to be low CC relevance with a low ABS and so do not feature strongly in the weighted expenditure. Most CC expenditure on agriculture is in development expenditure, although this includes the ASWAP which is in the project list and may partly be used to fund recurrent costs. There is also important CC development expenditure in irrigation and roads. DRM features mainly in the AMP project database, and not in the budget, although it is debateable whether it should be defined as a development expenditure. There are a number of water resources projects in the AMP database, which do not feature in AFS Annex 6 and so the AFS programme expenditure on water resources is calculated as recurrent expenditure. In contrast, the expenditure on the water and sanitation programme roughly matches the project

[18] In practice, local development includes the major transfers to sub-national governments, which are probably spent mostly on development expenditure at the sub-national level.

expenditure on watsan, suggesting that there is little recurrent expenditure, at least within the AFS. It is possible that recurrent expenditure on watsan is contained within local government budgets.

The exact reasons for the difference are impossible to determine without a detailed assessment of which projects are included in the AFS and AMP, which would be an extremely detailed task. However, the main differences between the AFS and AMP are likely to be: a) that the AMP includes some projects that are not in the budget; b) that the AFS includes major programmes of domestically funded climate expenditure; c) the total AFS is based on sub-programme level data, not project level data, and so the ABS weights are less refined; and d) the AFS provides budget figures in MWK and the AMP actual disbursement in USD, which may be particularly important during periods of substantial devaluation. Key sectoral differences are as follows.

- Agricultural expenditure in the AMP is much lower than in the AFS in raw expenditure, but relatively .
- There is significant CC expenditure that is included in the AMP and not in the AFS.
- Disaster management is much higher in the AMP, largely because of the very large PRRO programme.
- Irrigation is also much lower in the AMP figures than in the AFS.
- Local level expenditure is much lower in the AMP projects, presumably because the AFS data includes the large transfers from central to local government.
- Expenditure on roads (all of which makes only a marginal contribution to adaptation) is much higher in the AFS than in the AMP.
- Whilst the AMP figures on water and sanitation are similar to those of the AFS, there is much less expenditure on water resources management. This may be because of the way some water expenditure is classified in the programme budget.

Figure 34 Sectoral Breakdown of Climate Expenditure, Unweighted (FY17)

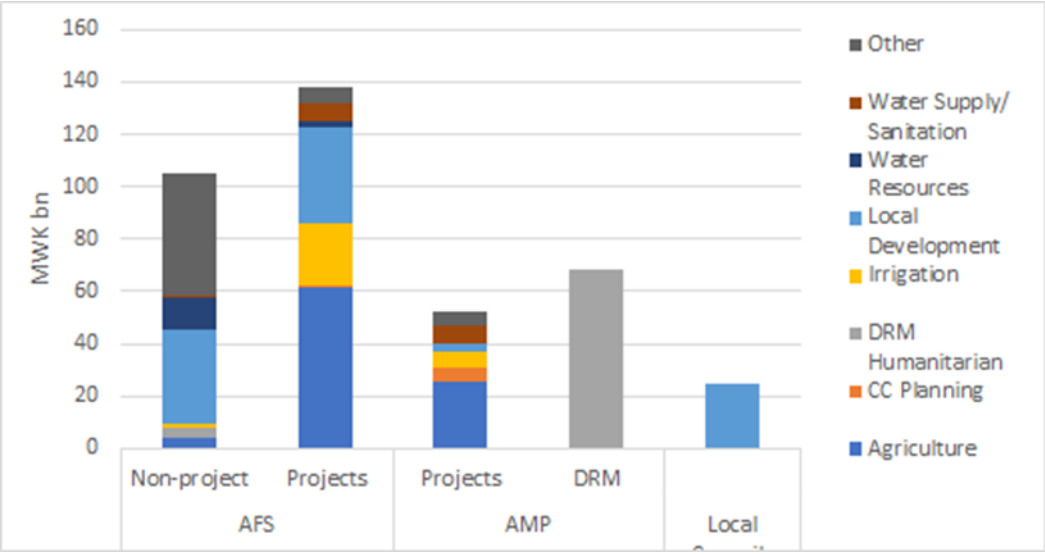
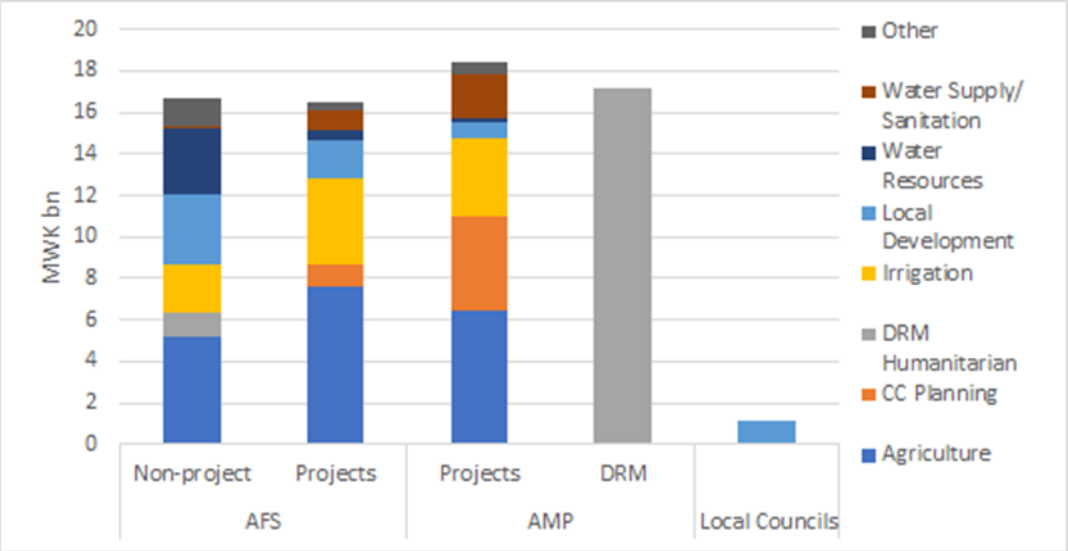


Figure 35 Sectoral Breakdown of Climate Expenditure, Weighted (FY17)

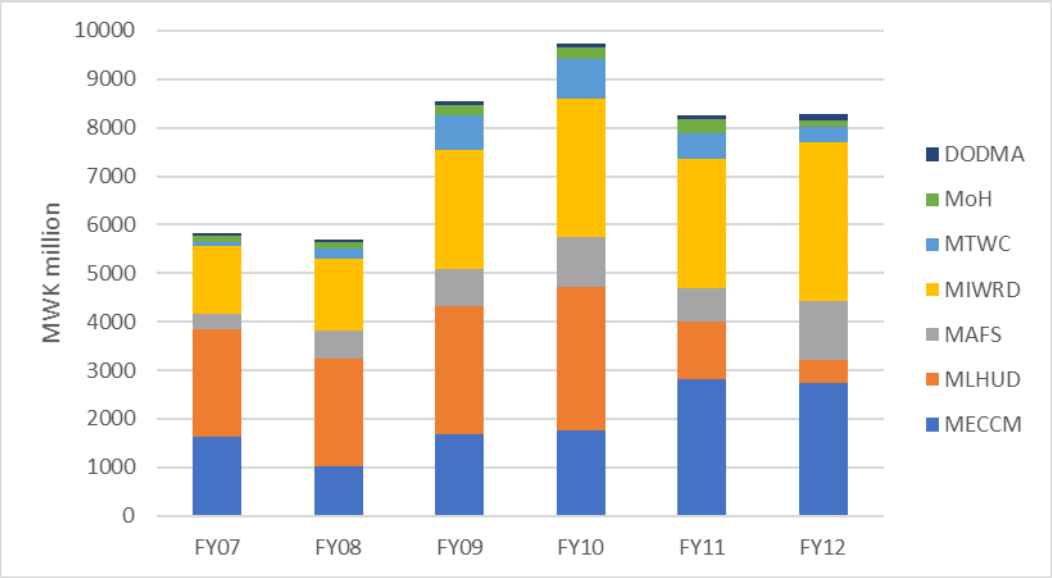


3.8 Previous Studies of Climate Expenditure

MoF Environment, CC and DRM PER (2014). The MoF published a Joint Public Expenditure Review (JPER) covering expenditure in environment, CC and disaster risk management in 2014. The JPER reviewed the budget and actual expenditure for: a) 6 ministries responsible for expenditure in environment and natural resource management (ENRM); b) Local Councils; and c) the Department of Disaster Management Affairs (DMA). Access to data on budgets and actual expenditure was available at the level of cost centres, which cover departments, divisions and/or institutions with independent budgets, like research centres. It is not clear how the JPER decided what expenditure was included in the JPER. However, it appears that the JPER covered all the cost centres in the Ministry of Environment and CC Management (which accounted for 22% of ENRM expenditure), the Ministry of Land, Housing and Urban Development (25%), the Ministry of Agriculture and Food Security (9%), the Ministry of Irrigation and Water Development, the Ministry of Tourism, Wildlife and Culture and the Ministry of Health.

Figure 36 presents the total budget for environment, CC and DRM, as calculated by the 2014 JPER. The total level of expenditure in FY12 was just over MWK 8bn. This compares with a total of nearly MWK 15bn for FY12 estimated in this study, based on the AFS data. Although there may be some environmental expenditure that is not CC expenditure (eg on pollution and some conservation programmes), the scope of the JPER and CPEIR are very similar. The higher estimate in the CPEIR probably reflects the broader definition of expenditure and the inclusion of local development expenditure.

Figure 36 Climate Expenditure in the JPER Ministries



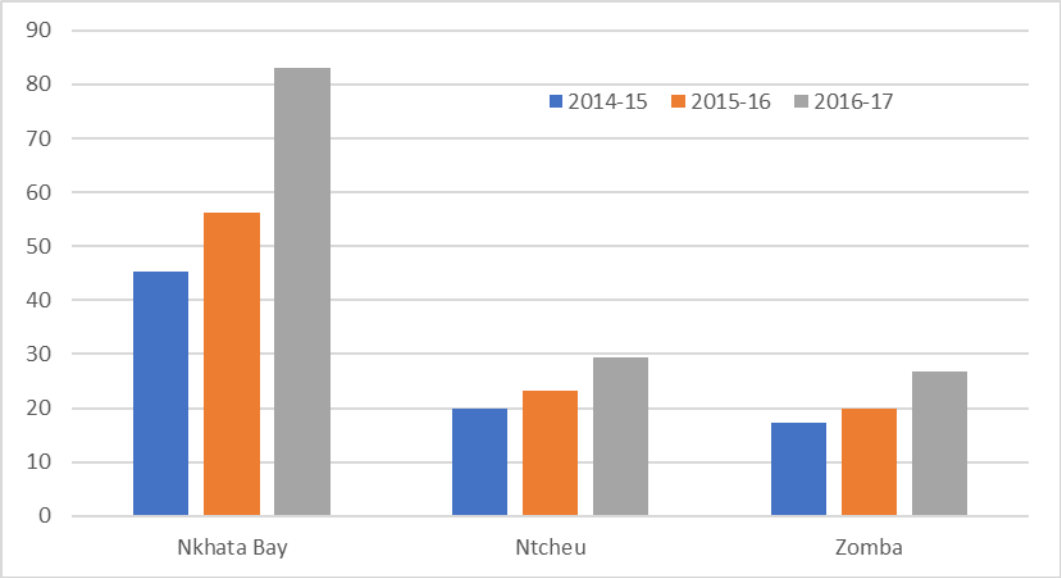
Source: MoF 2014 JPER

IMDSA District Expenditure CPEIR (2017). The Institute for Management Development and Social Analysis (IMDSA) conducted a study in 2017 to 'Carry out District Council Annual Budget Analysis for Inclusion of CC Budget: Focusing on Local Development Fund (LDF) and Public Works Programme (PWP)'. The IMDSA used the NCCIP as the basis for inclusion of expenditure in the analysis. It covered the same three districts as are covered in this CPEIR (ie Nkhata Bay, Ntcheu and Zomba).

Four types of climate expenditure were defined: adaptation, mitigation, research and capacity. The focus of the report was on understanding the composition of the LDF and the PWP both of which support a range of activities with varying contribution to adaptation. The study also analysed the composition of the Malawi Flood Emergency Recovery Programme (MFERP), the Malawi Drought Recovery and Resilience Project (MDRRP) and the recurrent activities of the Ministry of Agriculture, Irrigation and Water Development.

The IMDSA draft report suggests that climate expenditure in Nkhata Bay increased from about MWK 45m in FY15 to MWK 83m in FY17, as shown in the figure below. Ntcheu and Zomba had similar levels of climate expenditure, starting at about MWK 20m and increasing by about 50% over the three years. These levels of expenditure are between 5% and 15% of the District Council budgets. This is much lower than the levels reported in this CPEIR, which found that the climate expenditure in the Local Council budget was 36%, 34% and 34% in Nkhata Bay, Ntcheu and Zomba respectively. The difference between the two estimates is probably explained mainly by the fact that this CPEIR adopted a relatively broad definition of climate expenditure, in line with most international CPEIR practice, using the sub-programmes identified as making a contribution to adaptation in Table 4. In contrast, the IMDSA used a narrower definition based on the NCCIP. It is not clear from the IMDSA draft report whether the guidance on the scope of climate expenditure came from the NCCIP review of past expenditure (which is relatively broad) or the NCCIP overarching programmes (ie watershed management, agriculture, infrastructure proofing and DRM, plus technology and capacity development related to CC) which are more narrow. However, the relatively low estimates of climate expenditure suggest that the IMDSA limited the scope of climate expenditure to activities that fall under the four overarching programmes.

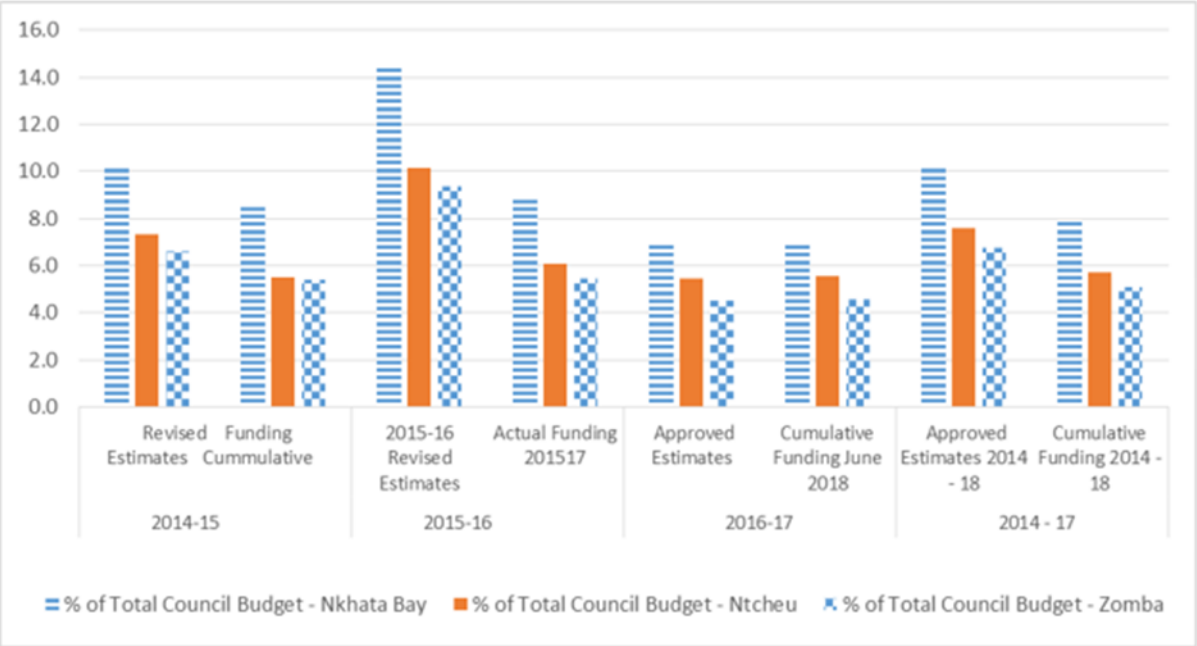
Figure 37 Climate Expenditure in IMDSA Report



Source: (IMDSA 2017)

The share of climate expenditure in total expenditure varied between about 5% and 15%, as shown in the figure below. The patterns between the districts were consistent with those found in this CPEIR, with Nkhata Bay having a significantly higher share than the other two districts. The share of climate expenditure in actual expenditure was consistently lower than the share in the budget, suggesting that climate expenditure has a significantly and consistently lower disbursement rate than average. The reasons for this would require discussion with those involved in the projects.

Figure 38 Climate Budget as % of Total Budget in Local Council Budgets



Source: (IMDSA 2017)

4 The Effectiveness of Climate Expenditure

Between 24 September and 3 October 2018, visits were made to Zomba, Ntcheu and Nkhata Bay to work with district officials to classify a sample set of programmes according to their likely contribution to adaptation. The programmes selected by the districts were all strongly concerned with adaptation and the pilot work therefore did not develop experience with assessing expenditure for which adaptation was a relatively minor concern, such as programmes related to primary health (which may help address the growing burden from climate sensitive diseases), income generation (which may contribution to household resilience) or rural infrastructure (which may include features that provide protection from floods). Experience in other countries suggests that, once the principles of the classification are understood, it is relatively easy to extend this to new types of expenditure, provided that the classification is guided by people who understand CC and how it may affect the activities funded by the expenditure.

4.1 Background and Nature of Climate Change in the Districts

Background. Malawi has 28 districts and 7 town and city councils. The three districts were chosen because they were involved in the ADAPT PLAN project. Key features of the districts are described in Table 20 below. The average population of a district in Malawi is 470,000, so the population of Ntcheu is average, Zomba is slightly higher than average and Nkhata Bay slightly lower. The socio-economic character of the three districts is mixed. Nkhata Bay has a relatively low proportion of very poor households and a higher ability to save, but has higher than average food insecurity and relatively small landholdings. Ntcheu is close to average on some socio-economic indicators, but has low land ownership and low ability to save. Zomba appears to be the poorest of the districts, with a high level of very poor households, few households that are able to save and high use of cash transfers.

Table 20 Key District Indicators

	Malawi	Nkhata Bay	Ntcheu	Zomba
Population (2008 census)	13.08m	215,789	471,589	579,639
As % of total		1.65%	3.60%	4.4%
Farm size (acres)	1.5	1.1	1.4	1.4
Land ownership	76.5%	66.0%	48.2%	78.6%
Very poor households (self-assessed)	35.8%	23.6%	32.0%	58.3%
% households very low food security	61.4%	66.1%	62.1%	88.4%
Households able to save	6.3%	16.4%	1.9%	2.0%
Households receiving food programmes				
Households receiving cash transfers	7.5%	8.4%	1.0%	20.4%

Source: (Republic of Malawi 2017);

Perceived Nature of CC in Districts. The consensus in Nkhata Bay was that erratic rainfall has become an increasing issue in the district and that this was expected to continue into the future. This includes issues of drought, leading to the drying up of rivers and the reduction in water levels in Lake Malawi, as well as flooding from heavy rains. Because the population of Nkhata Bay are largely reliant on three main cash crops (cassava, bananas, and rice), the increasingly unpredictable rainfall will affect household food security and income in the area significantly. The lake is also a significant source of income in the area and it has been noted that recent variations in climate have affected the fish population, again affecting household income levels.

Much of Ntcheu has always been affected by low rainfall, because the area is in a rain shadow. Rainfall is perceived as becoming more erratic, which creates problems for livelihoods that are largely dependent on rain-fed agriculture. The district had also seen an increase in diseases and

pests, which had decreased yields and harvests, and this is perceived as being connected with CC. In some parts of the district there were issues of flooding, especially as rivers were reducing in depth due to siltation from soil erosion. It was understood the flooding was expected to increase with CC.

Zomba has suffered from unreliable rainfall in recent years, with recurrent dry spells. This is expected to continue, affecting crop and livestock farming in the area, as well as leading to a shortage of water for domestic use. Pests are also seen to be increasing, affecting crop yields. Flooding is also a particular issue in some areas of the district, with heavily silted rivers exacerbating the problem.

4.2 Selecting Sample Projects

Defining Climate Expenditure. The tables on expenditure in Nkhata Bay, Ntcheu and Zomba in section 3.6 report on the evidence available on public expenditure in the three districts. This section considers which of this expenditure contributes to adaptation and/or mitigation. The tables in section 3.6 include two columns that define whether CC has a high, mid or low relevance to the expenditure and provide an estimate of the Adaptation Benefit Share (ABS) for the programmes, using the default values suggested in Table 4. This chapter reports on more detailed analysis done for sample projects that would over-ride the default values with analysis of more project-specific evidence.

The explanation of the ABS, and the value it brings to programme design and to overall district planning, were explored during work with district officials. The collaboration used a qualitative approach to estimating the ABS, as described in section 1.5 and Annex 1. The level of the ABS is closely related to the expected increase in the frequency and severity of floods, droughts and rainfall variability. As there is no downscaled evidence on this in the three districts, the CPEIR assumed that CC would see a doubling by 2050 in the frequency of floods, drought and variable rainfall events of all sizes, as reported in section 1.3. This means that high CC relevance projects have ABSs of 16-25%, mid relevance of 6-15% and low relevance 1-5%[19].

Identification of Sample CC Projects. Within each district, between five and seven projects were chosen, in collaboration with district officials, as listed in Table 21.

Table 21 Sample Projects Reviewed for Climate Relevance and Benefits

Programme	Donor	Total cost USDm	Date	Nkhata Bay	Ntcheu	Zomba	Description
PRIDE	IFAD	84.0	2015-2022	Yes		Yes	Land & water management, farmer schools, value chain
Shire River Basin Management	WB	136.3	2012-2019		Yes	Yes	Water resources management
MFERP	WB	80.0	2015-2019		Yes	Yes	Infrastructure rehabilitation, disaster management
AIYAP	AfDB	19.4	2017-2022	Yes			Irrigation, watershed, crops, value added, employment

[19] Because the doubling in frequency occurs gradually, the adaptation benefits up to 2050 are 50% of the development benefits (ie the extra benefits from protecting against the increased frequency arising from CC would be 50% of the benefits from protection against the current frequency). Because the ABS is expressed as the adaptation benefits divided by total benefits (including both development and adaptation) the normal maximum ABS is 33% (ie 0.5/1.5) if discounting is ignored and 25% if benefits streams are discounted.

Programme	Donor	Total cost USDm	Date	Nkhata Bay	Ntcheu	Zomba	Description
SALFP	Norway	8.5	2014-2019	Yes			Value added and marketing
MASAF IV via LDF	WB	32.8	2014-2019	Yes	Yes	Yes	Public works, skills, cash transfers, capacity building
ADAPT PLAN	UNDP	4.5	2015-2019	Yes	Yes	Yes	Awareness, vulnerability studies, livelihood diversity, climate planning
IYEP	AU	NA	2018-		Yes		Crop/water productivity, energy efficiency, irrigation, employment
MDRRP	WB	104.0	2016-2021		Yes	Yes	Agri productivity, irrigation, water resources/supply, humanitarian
SRWSIP	AfDB	25.6	2014-2019		Yes		Water supply, sanitation, water resources

Note: further details are provided in Annex 1

The projects selected were seen as making a strong contribution to adaptation and it was therefore expected that the ABS would be relatively high. All programmes chosen were donor programmes. They cover a range of projects focusing on agriculture, irrigation, watershed management, water and sanitation, flood and drought relief, climate adaptation, and broader livelihood and safety net programmes. A number of other projects were identified as potentially contributing to adaptation but were excluded from the assessment because the experts involved were not available for discussions[20].

4.3 Assessment of CC Relevance and Benefits

The purpose of the classification of each project was to pilot an objective method for identifying what is climate expenditure (and what is not). This was expected to promote understanding of the relative importance of adaptation and development. For each project, a participatory meeting was held with district officials working on the project to carry out a simple classification based on the objectives of the project to determine the extent to which CC is taken into account when designing and approving expenditure, followed by a more detailed assessment of ABS, discussing the benefits of the projects and the extent to which these benefits change when taking CC into consideration.

The results of the assessments are presented in Table 22 below. More detailed results are presented in Annexes 3 and 4, which include summary CCIA tables for most of the projects assessed. All the sample projects selected were stated as having a high CC relevance and adaptation was seen as one of several primary objectives of the project. As a result, all the ABSs were relatively high, at between 16% to 23%. This suggests that between 77% and 84% of the benefits of the projects would be achieved, even if CC does not happen.

Table 22 Adaptation Benefit Share for Sample Projects

Project	Donor	ABS			Description
		Nkhata Bay	Ntcheu	Zomba	
PRIDE	IFAD	22%		17%	Land/water management, farmer schools, value chain

[20] In Nkhata Bay, this included two EU funded agriculture and nutrition support programmes, Kutukula ulimi m'malawi (KULIMA) and Afikepo, as well as a water and sanitation programme supported by UNICEF.

Project	Donor	ABS			Description
		Nkhata Bay	Ntcheu	Zomba	
SRBMP	WB		20%	19%	Water resources management
MFERP	WB		20%	18%	Infrastructure rehabilitation, disaster management
AIYAP	AfDB	21%			Irrigation, watershed, crops, value added
SALFP	Norway	20%			Value added and marketing
MASAF IV	WB	16%	20%	18%	Public works, skills, cash transfers, capacity building
ADAPT PLAN	UNDP	23%	22%	22%	Awareness, studies, livelihood diversity, planning
IYEP	AU		20%		Crop/water productivity, energy efficiency, irrigation
MDRRP	WB		20%	21%	Agri productivity, irrigation, water resources/supply
SRWSIP	AfDB		22%		Water supply, sanitation, water resources

The consistency of the results between each district gives an indication of the objectivity of the qualitative CCIA methods used. In most cases, the ABSs for each district were within a couple of percentage points. They were slightly larger for the PRIDE and MASAF projects, which may reflect real differences between districts in the nature of the activities or the degree of vulnerability. It could also reflect the fact that there remains some subjectivity in the approach.

Nkhata Bay. In Nkhata Bay, ADAPT PLAN was given the highest score of 23%. The most significant benefits given for the project were: income generation and livelihood diversification; improved food security through irrigation and crop diversification; and access to information on CC. These were all given a 'high' sensitivity score (ie indicating strong implications of CC for the benefit). A few benefits were considered less important (ie water retention due to forest increase and watershed management), but these also had a high sensitivity score. The only benefit that did not have a high sensitivity score was the support for social infrastructure, which was a minor benefit. The discussion identified some additional expenditure required to proof the irrigation system and add water use efficiency, in order to secure the adaptation benefits.

PRIDE was given a high ABS of 22%. The benefits from irrigation came from agricultural productivity, increased incomes and improved food and nutrition security. All of these were assessed as having a high sensitivity to CC, because the value of water efficiency is directly proportional to the frequency of drought and rainfall variability. Land use policy and the creation of roads were considered as having only mid sensitivity. Catchment conservation was considered to be high CC sensitivity for PRIDE, unlike in ADAPT PLAN, where it was considered mid CC sensitivity.

The diversification of income sources and increased income for households was a common benefit throughout all projects in Nkhata Bay, and this was as seen being highly sensitive to CC because increased household income enables households to be less vulnerable to poverty induced by CC and to use their income to cushion themselves against climate shocks. Diverse sources of income also stop households being so reliant on one natural resource for their income, allowing them to build their resilience in the face of drought.

Ntcheu. All the projects assessed in Ntcheu had similar ABSs, with ADAPT PLAN and SRWSIP having 22% and the others 20%. The key benefits for SRWSIP were increased access to clean safe water and improved sanitation, which were considered highly sensitive to CC. Other benefits included improved catchment management and water storage, livelihood diversification, increased incomes,

improved skills and knowledge on good hygiene, and increased water flow into the rivers due to decreased erosion and siltation of the rivers. The discussions decided that all the benefits had increased under CC because, with CC, there would be increase water scarcity, affecting water availability, hygiene and sanitation. The livelihood component of the project was also seen to be important in allowing households to diversify their incomes, making them more resilient to climate shocks. When discussing potential additional costs for the project, however, there were various areas that would need to be considered in the future, including implementing higher yield boreholes that meet the demand of the local population.

In Ntcheu, the key benefits from ADAPT PLAN were improved health from clean water, increased household income from food production, increased access to water through solar boreholes and watershed management, and increased agricultural productivity from irrigation. All these were seen as having high sensitivity to CC. Income was also seen as highly important in helping farmers to buy more farm inputs and diversify their incomes and build resilience against drought. The only benefit that was not highly sensitive to CC was improved nutrition of the households, which was considered to be important with or without CC.

Zomba. Projects were given an ABS of between 17% and 22%, with ADAPT PLAN scoring 22% and MDRRP scoring of 21%. The assessment of ADAPT PLAN was similar to that in the other districts, but it was considered that there would need to be some additional costs to deliver the adaptation benefits, because deeper boreholes would have to be deeper. The key benefits for MDRRP were: increased income of households from more hardy crops and livestock; increased water availability due to catchment conservation; increased food security of households due to increased drought resistant crops and livestock; and increased diversification of livelihoods. These were all considered to be highly sensitive to CC. The only benefit that was not highly sensitive to CC was increased mobility with new roads (access to market, hospitals and schools etc) which was thought to have some sensitivity to CC (eg by facilitating income diversification), but this sensitivity was considered to be low.

Consistency between Districts. In many cases, there was good consistency between the assessments of the same project in different districts. However, there were was a difference of 5% points between Nkhata Bay and Zomba, for the PRIDE project. Table 23 illustrates this by listing the benefits identified in each district, along with the relative importance and the sensitivity score. Although there are similarities, with both districts highlighting benefits linked to food security, income and water management, there were also significant differences in the focus and scope of the benefits. For example, in Zomba, increased incomes are linked to the increased access to market, whereas in Nkhata Bay they are also linked to the agricultural productivity. In addition, Nkhata Bay included one benefit not listed in Zomba and there were three benefits listed for Zomba that did not feature in Nkhata Bay. It is likely that some of these differences reflect the focus of activities in the districts, but there also seem to have been considerable differences in the way in which similar benefits were described which has affected the ABS scores and may affect the extent to which the project can claim to contribute to adaptation, in addition to routine development.

Table 23 Benefits for the Project for Rural Irrigation and Development (PRIDE).

Nkhata Bay	Zomba
Improved food security and nutrition due to increased crops production and diversity (3H)	Increased food security due to improved irrigation and catchment management (3H)
Less reliance on rain-fed farming due to shift to irrigation (3H)	
More efficient use of water sources and less water run off wasted (3H)	

Nkhata Bay	Zomba
Increased income through improved agricultural productivity and increased access to markets 3H)	Increased incomes with access to market, and so increased education, health etc (3M)
Improvement in access from roads, dams and bridges (3M)	
Improved catchment conservation through setting aside village forest area and forests (3H)	Less siltation and more water in rivers due to improved catchment management (3H)
Use of idle land for cultivation (2M)	
	Improved nutrition at household level (2N)
	Improved biodiversity (1M)
	Improved participation of women in agric. (1L)

4.4 Lessons Learns at the District Level

Perceptions of CC and Environmental Issues. In all three districts, officials had limited awareness of CC. Discussions with district officials for each project started with a discussion of past changes in climate, current climate variability, and future climate projections, and the impact these changes have had and will have on the livelihoods in their district. Officials were familiar with recent variability in climate, including rainfall variability, drying up of rivers, and occurrence of extreme events such as flooding, as well as the effect of these changes on local livelihoods. However, there was little awareness of scientific evidence on recent climate variability or of future prospects.

Conversations around CC were often linked to and confused with wider issues of environmental degradation such as pollution and overexploitation of natural resources, including deforestation. It was often felt that environmental degradation was contributing to CC. Whilst the impact of forests on local micro-climates may be significant, the focus on this issue may be distracting officials from the fact that CC is expected to be driven primarily by global processes rather than local environmental degradation and CC adaptation will be required, even if local deforestation is halted or reversed.

These observations were not uniform across all district officials and a few officials did show a strong understanding of CC. Senior officials in the districts recognised that there were still gaps in district capacity. Many staff have already undergone some training and capacity building to increase their understanding, but it was widely recognised that there is a need for further support for integrating CC into district level planning.

Identifying Project Benefits. A common challenge in all three districts was for district officials to decide on the benefits from their projects. District officials often listed the objectives of the projects, rather than the benefits to people and ecosystems. For example, 'increase in forest cover' can be seen as an objective, delivering benefits in the form of increased incomes, reduced soil erosion and downstream flooding or improved biodiversity. Discussions therefore went through each of the activities of the project and listed the benefits from each activity. It was then possible to agree upon the final benefits, which often meant grouping benefits when they were overlapping and omitting more indirect benefits that were not key to the project. One of the main benefits from using CCIA is to encourage precision in thinking about how people and ecosystems benefit from public expenditure and the implications of CC for these benefits. This should be consistent with other initiatives to promote results based budgeting. It will help avoid greenwashing and appeals to support expenditure on any project that has objectives related to CC, regardless of the effectiveness of the contribution to adaptation and/or mitigation.

The district officials taking part in the ABS analysis had sometimes been involved only in the implementation of the project, and not the design. There were sometimes differences between what they saw as the actual benefits for the people and ecosystems and the vision in the project design. For example, the benefits from increasing forest areas were often seen as providing a source of fuel and livelihood, but there seemed to be little emphasis on the environmental benefits of forests (eg water conservation and reduced greenhouse gas emissions, surface runoff and siltation).

Assessing the Magnitude of Benefits. Officials did not find it difficult to decide on the score to be given to each benefit to show its relative importance to the project. On the whole there was also less subjectivity in this scoring process and it was seen that similar benefits for the same project given in different districts were normally assigned the same score. For example, for the MFERP, the benefit of 'improved access to markets and other social services through infrastructure rehabilitation', was given a score of 2 in both Zomba and Ntcheu. However, there were a couple of cases where there was disagreement between districts, perhaps because the focus on different activities or the success of different activities varied between the districts. Under ADAPT PLAN, 'improved food security through irrigation and crop diversification' was given a 3 in Zomba and a 1 in Nkhata Bay. In Ntcheu it was not even listed as a benefit.

Assessing CC Sensitivity. Thinking about the implications of CC for each benefit proved to be challenging. The first challenge was to distinguish between the score for the size of the benefit and the sensitivity of the benefit to CC. This was partly because many were not aware of what CC was likely to involve and partly because of the complexity of the concepts. Many participants suggested that all benefits were highly sensitive. Discussions were more constructive when there was a group of participants in the meetings. Often the facilitators brought people from more than one project to a meeting so that they could learn from each other and also debate whether the benefits would become more important when considering CC.

There were some benefits that repeatedly sparked debate and confusion, such as 'improved nutrition status of households'. Some argued that nutrition was always important but didn't have any significant additional benefit in helping protect a population against the impact of CC. Others thought that having a strong healthy household with good nutrition would enable people to withstand the impacts of CC much more successfully. In cases like this, if a consensus wasn't reached within the group, the project manager had the overall say in the response to be given. Therefore, although there is a lot of commonality between districts on the CC sensitivity score, there are some differences. The revised NCCIP could strengthen discussion about the implications of CC for some key development benefits. This should cover the main cross-sectoral benefits, such as poverty, food security and child and youth policy, which are especially complicated. It should go beyond the identification of causal linkages and classify the implications as strong, medium and weak, which can then be used to guide sensitivity assessments in CCIA work.

Adaptation Benefit Share. The final ABS is not a concrete quantitative estimate and is influenced by the subjectivity of the participants. However, the participants trusted the final outcome and saw it as a useful way of recognising their projects' contributions to adaptation. The fact that the ABS system was being used internationally gave the participants confidence in the methodology, although they did not fully understand the science and equations behind it. The main benefit recognised by participants of the assessment process was that it was very useful for providing a structured framework for a debate on the contribution of their projects to adaptation in their district. As highlighted by senior officials in more than one of the districts, many projects are tackling CC issues, but many of those implementing the projects may not know they are making contributions to address CC.

Calculating Costs. The main focus of the pilot work was on the sensitivity of benefits to CC. However, the pilot process also attempted to review the implications of CC for the costs of the projects. This

meant discussing with the government officials whether there would be any additional 'proofing' costs needed for the projects to ensure that adaptation benefits were delivered. This was then defined as a negative benefit to the project and incorporated into the final ABS. However, the facilitators found that this was not a suitable discussion to be having at the district level. The participants were often not aware of the budget for the project, or how much different components took up out of the total budget. It was therefore difficult for them to estimate how much the total budget of the project would have to increase to incorporate specific proofing needs. The facilitators also found that the participants did not always have the technical expertise needed to understand proofing needs. Rather, the participants tended to come up with a 'wish list' of additional areas it would be good for the project to start funding or made suggestions of where the project might expand into new areas. It was therefore decided not to focus on the costs at the district level, although it was always mentioned that it was important to consider them when thinking about how the project would contribute to future CC adaptation. Districts may wish to consider reviewing all the major expenditure programmes to identify those where CC requires additional expenditure to guarantee intended development benefits. This should go beyond the identification of proofing needs and include an assessment of the cost-effectiveness of this proofing, using CCIA methods.

5 Conclusions

This chapter describes the conclusions relating to perceptions, classification (from chapter 3) and effectiveness (from chapter 4). The recommendations for future activities in CC mainstreaming are presented in bold italics. These recommendations form the basis of the CC Mainstreaming Action Plan presented in the final chapter.

5.1 Perceptions of Climate Change and Mainstreaming

Climate Change. At the national level, there is now widespread awareness about the evidence that Malawi is likely to experience changes in climate that will lead to more frequent droughts and floods and more variable rainfall, including extreme rainfall events and unseasonal rainfall patterns. However, the scale and speed of the change is not widely understood outside the DEA. This is partly because there has been no study of CC at the 'downscaled' national level, which leaves Malawi relying on international studies that do not focus exclusively on the situation in Malawi. One of the most useful international studies is the IPCC Special Report on Extreme Events (SREX) (IPCC 2012).

DEA should conduct an awareness programme amongst key line ministries and districts. This should ensure that line ministries and districts are familiar with SREX and should promote the use of a suitable 'rule of thumb', such as that the frequency of floods, droughts and irregular rainfall will double by 2050.

The absence of downscaled evidence is not unusual in Africa and the capabilities of downscaled CC models are, anyway, still limited. Some climatologists argue that, for smaller nations, policy over the next few decades is more appropriately informed by trends over the past few decades than by downscaled climate models[21]. Malawi does have some data on rainfall and flooding (see Figure 10, for example) that are not yet utilised for CC planning and budgeting. These could be used both at national and district level.

DEA should analyse the meteorological and flood data available for the last few decades to show how the probability of the occurrence of a flood, drought and unseasonal/extreme rainfall event has changed and use this as a guide to future change at national and district level, triangulating this evidence with that from climate models.

District governments should be aware of any climate data collected over the past few decades in their district, or in similar neighbouring districts, and use this as one source of evidence to specify a scenario of likely future CC in their district. They should use this evidence in the CCIA activities referred to in section 5.3.

At the District level, understanding of CC is still very limited, as discussed in section 4.4. There is awareness that climate has changed in recent decades and that this is likely to continue and worsen. However, the causes of the changes are not well understood.

NLGFC should collaborate with DEA to continue and expand existing projects to raise awareness about CC amongst senior district officials. This should be complemented by national initiatives taken by Line Ministries to train district staff.

Mainstreaming. Mainstreaming refers to the integration of CC into planning and budgeting. This is a challenging task, both conceptually and institutionally. Solutions need to suit the development and institutional circumstances of each country and international experience provides only partial guidance. In Malawi, there are a variety of views about mainstreaming. One common view appears to be that integration is not appropriate in Malawi and that climate finance should be separated,

[21] Statement by Professor Robert Wilby at a workshop in Yemen in 2010.

rather than integrated. The CPEIR often encountered comments that suggested that officials and donors expect climate expenditure to be managed and accounted for separately from development expenditure. The 2014 Joint Public Expenditure Review recommended that all spending on CC should have a separate budget code, which implies that development projects that contribute to adaptation must either be extracted from their normal place in the development budget or that they should remain in the development budget and their contribution to adaptation should be ignored, both of which are undesirable. The discussions about establishing a National Climate Fund also suggest that there is a view that at least some climate finance can be managed separately from development finance.

This CPEIR suggests that more than 25% of all public expenditure makes a contribution to adaptation and/or mitigation[22]. Separating this expenditure into one budget code would involve a major reform in institutional responsibilities and be very disruptive to the budget process. It would also be counterproductive. The development benefits generated by this climate expenditure are almost always larger than the adaptation and/or mitigation benefits and the design of these projects needs to remain focused primarily on the development benefits, although the projects do also need to be adjusted to take the adaptation and/or mitigation benefits into account. Even projects that are often presented as core climate expenditure (eg irrigation, sustainable land management, drought resilient crops, water resource planning, malaria response …) deliver development benefits that are more important than the extra adaptation and/or mitigation benefits. Extracting these projects from the development budget would: a) confuse the design of the projects; b) undermine the strategic prioritisation that takes place within the development budget; and c) create duplication in the management of key investments and services leading to inefficient use of scarce human resources and serious risks of inconsistency and competition between overlapping projects.

DEA should promote wider awareness of the importance of integrating CC into planning and budgeting. This will come partly from the strategic coordination described in section 5.4 and the implementation of the CC Mainstreaming Action Plan described in chapter 6. However, there are other initiatives relating to CC that need to recognise the importance of mainstreaming as an overarching principle of Malawi's response to CC, including the work on an updated NCCMP and NCCIP.

Dedicated CC Expenditure. Whilst a mainstreaming approach requires most adaptation and mitigation expenditure to be integrated in development planning and budgeting, it accepts that some expenditure is sufficiently dedicated to CC for it to be safely separated from development. Dedicated CC expenditure is either exclusively or primarily to adaptation and/or mitigation, and makes little or no contribution to development. It includes 'proofing' expenditure and 'soft' and institutional activities. The key criteria for being classified as dedicated CC expenditure is that the benefits from the expenditure should have little or no value if current climate conditions continue. This criteria does not imply that it is possible that CC will not happen and is used simply to ensure a rigorous approach to mainstreaming.

Proofing expenditure identifies specific additional costs required to protect development benefits from the risks of CC. These proofing costs may be added to a new project or retrofitted. Examples might include designing larger culverts on roads or improving the energy efficiency of building specifications. In practice, most of these changes will have strong development benefits and it is difficult to isolate the additional benefits from adaptation. As a result, proofing is usually achieved by marginal changes in specifications for development projects and most dedicated CC expenditure is soft expenditure, including the following.

[22] This figure excludes expenditure on large projects that make small contributions to adaptation (like roads and primary health).

- Research and studies associated with CC include: downscaled CC modelling; analysis of recent trends in climate; and CCIA studies.
- Information services that relate very explicitly to CC include information about changing seasonality, when used primarily as an indication of likely future CC. Early warning systems often become increasingly important with CC, but are primarily development programmes responding to existing risks.
- Capacity building that focuses explicitly on CC includes awareness raising and the introduction of new practices, such as CC classification and CCIA.

There is one further category of CC expenditure that may be primarily or exclusively dedicated to adaptation: expenditure that responds to the increasing risks of heat stress will be primarily focused on CC, if the rising temperatures push people and ecosystems above tipping points that are rarely experienced with the current climate. This could include expenditure that responds to labour productivity thresholds for people and crop yields for ecosystems. These programmes are still rare in most countries, although there is growing international interest in policies and investments that respond to the risks of falling labour productivity.

It is sometimes argued that pilot projects that demonstrate the potential importance of adaptation and/or mitigation can be included as dedicated CC expenditure, even if they relate to activities that are primarily development activities. This argument is reasonable, although it needs to be made with care as it can be exploited to allow development projects to be financed from CC expenditure, which undermines the principles of mainstreaming.

There has been little soft dedicated CC expenditure in Malawi and it will need to increase, at least for a period. There is sometimes a tendency to underestimate the costs of soft activities and assume that hard expenditure on infrastructure and services requires much more funding. This would be a mistake because the soft expenditure is often essential to ensure the efficiency of the hard expenditure. However, soft dedicated CC expenditure will always be a relatively small share of the total climate expenditure, even over the next few years when a boost in capacity building is justified.

Dedicated CC expenditure could be the focus of a National Climate Fund (NCF). However, international experience with NCFs suggests that, in practice, it is often very difficult to limit their support to dedicated CC expenditure and that many NCFs end up financing development programmes that have not been considered of sufficient priority to feature in the budget, even when adaptation and/or mitigation benefits have been clearly specified in budget submissions. There is therefore a risk that NCFs become a source of funding for 'B-list' development projects.

5.2 Classification and Analysis of CC Expenditure

Classification Method. At the heart of any programme to integrate CC into planning and budgeting is the classification of expenditure according to the relative importance of its contribution to adaptation and/or mitigation, compared to its contribution to development. The classification system should fulfil three main functions. Firstly, it should identify the extent to which development expenditure expects to deliver additional benefits associated with adaptation and/or mitigation. These additional benefits can be used by line ministries and districts as part of their justification for budget submissions. Secondly, it should identify expenditure that delivers development benefits that are at risk from CC and may require some additional proofing. The cost-effectiveness of the proofing expenditure should feature in budget submissions. Thirdly, the classification should provide a framework within which to encourage the consideration of CC during the design of programmes and projects. This will help ensure that public expenditure is as effective as possible in delivering development whilst also taking the risks and opportunities associated with CC into account.

There are two main options for the system of classification, one relying on the objectives and the other on the expected benefits. These methods are complementary, as described in section 1.5. The classification according to objectives is the simplest method and is the best basis for a standard national system in Malawi. However, using a version of CCIA to understand the implications of CC for the benefits of public development and services is the key to informed classification and can be encouraged for the ministries and projects that are most affected by CC.

DEA should produce a standard system of default classification for plans, budgets and accounts. In Malawi, the system should use the simplest possible option, which is to assign each budget unit a default high-mid-low category, as described in section 1.5. The system will initially need to be based on the sub-programme budget (ie AFS Annex 7), as the budget is not published at cost centre level. The standard system should be developed from Table 4 of this report. In the future, if IFMIS reports on cost centre expenditure (either for budget or actual expenditure) this can take over from sub-programmes as the main framework for classification.

The same classification methods should be applied both to budgets and to actual expenditure, as discussed in the following subsections.

Classification of Budgets. At present, the budget is published by vote (ie ministries, agencies and selected departments that require operational independence), by project and by sub-programme. Votes provide insufficient detail to allow for meaningful classification. The standard national classification system should build on the sub-programmes that contribute to adaptation and/or mitigation and should specify whether each programme is high, mid or low CC relevance. This can be used to produce an automatic estimate of total CC expenditure from the sub-programme budget. Because this estimate can be generated automatically, it could be included in the budget documents approved by parliament.

In preparing budget submissions, line ministries and districts require cost centres and programmes to prepare budgets, which are then compiled into their budgets, but which are not included in the published budget tables. Many of the cost centres are clearly aligned with one sub-programme in the standard programme budget system and they can adopt the default CC classification for that sub-programme. However, line ministries and districts may wish to argue for a different classification. For example, they might argue that the way the cost centre is approaching their activities places a relatively high emphasis on response to CC, or that the level of CC risks in their district is higher than the national average so adaptation benefits will be higher. CCIA provides the basis for the analysis to support claims of higher CC relevance and the classification system should encourage line ministries and districts to engage in CCIA as the instrument to ensure that CC is fully taken into account in designing programmes and projects.

Line ministries should classify cost centre expenditure according to high-mid-low CC relevance and prepare tables showing trends in high, mid and low CC expenditure over the last three years and in budget proposals. This classification should use a standard national system of classification of sub-programmes, but line ministries should be free to propose their own classification and to defend this using the principles of CCIA explained in this report. This could include estimates of ABS, in addition to high/mid/low CC relevance.

Districts should classify all their main programmes according to the degree of CC relevance, using at least the high-mid-low categories. They may wish to include ABS scores for some programmes, if they have been able to conduct CCIA (see below).

NLGFC should use the standard national system of sub-programme classification developed by DEA to produce CC budgets by district, using the sub-programme budgets that they prepare for districts.

Actual CC Expenditure. At present, data on actual expenditure is not available at a sufficiently detailed level to allow for meaningful climate classification, as discussed in section 3.3. Furthermore, there are no plans to strengthen IFMIS to include reports on actual expenditure by cost centre of sub-programme in the immediate future and, given the challenges facing IFMIS, this would not seem to be a priority. It is therefore not possible to make recommendations to incorporate the classification of actual CC expenditure into the regular mainstreaming of CC into government activities. However, it would be useful to follow this first phase CPEIR with a second phase CPEIR that devoted resources specifically to the analysis of payment requests and/or vouchers to allow for an estimate of actual CC expenditure, which could then be compared with budget. Similar issues apply at district level.

DEA should lead a second phase CPEIR that works with a few key line ministries and pilot districts to analyse payment requests to produce tables of actual expenditure by cost centre, for ministries, and by programme, for districts. These tables should ideally cover at least three years, in order to show the recent trend in actual CC expenditure. Cost centres and programmes should then be classified according to their contribution to adaptation and/or mitigation, using the standard national system applied to budgets. This will then allow a comparison between budget and actual CC expenditure which can be used to indicate the limitations of relying primarily on CC budget estimates.

Including CC in the AMP. The AMP already has a tag for registering contribution to CC and this needs to be improved, with guidance provided for more consistent use by donors. Consistency in classification should also facilitate consistency in policy and prioritisation.

MFEDP should ensure that the AMP database incorporates the same coding system as is used in the budget, to ensure consistency between the way that international partners and government classify climate expenditure.

MFEDP should produce a Donor Orientation Report on CC (DORC) in collaboration with DEA. This will encourage international partners to use the Malawi system for classifying their projects and invite them to design project to contribute to the objectives specified in an updated NCCIP.

Donors should enter data on CC relevance according to the system specified by MFEDP.

Budget Integration and Tagging/Scoring. CPEIRs often recommend that tags or scores should be added to the budget software so that the CC contributions of budget proposals can be reflected in climate expenditure tables, ideally produced in real time, during the budget process, to inform budget negotiations (UNDP undated). This is not yet appropriate for Malawi for two reasons: a) the limited capacity available for managing the budget process is best used on making sure that routine development budgeting works as effectively as possible; and b) the budget software does not have the capacity to include a tag/score without significant work, and the capacity to make this sort of software adjustment would be better applied to more fundamental budget reforms.

Annual Report on CC (ARC). Although it is not yet possible in Malawi to use budget tagging/scoring to influence real-time negotiation, it should be possible to prepare an Annual Report on CC that influences the following year's budget process. This would also be a valuable tool for raising awareness about the CC activities of government and donors and build experience in classifying CC expenditure. They should be produced shortly after the budget has been approved, as set out in Figure 39. ARCs should be produced at the national level, where they might be termed ARC in the Budget (ARCiB), the line ministry level (ARC-LM) and the district level (ARC-LC). They should be brief (eg 5 to 10 pages) and simple and cover the following main issues:

a) latest evidence on expected CC and risks

b) trends in CC expenditure using the national standard practices and covering the last three years and the latest year budget
c) any evidence on effectiveness coming from CCIA work through the previous 12 months.

Figure 39 Integration of the Annual Report on Climate in the Budget in the Budget Process

	Budget Process	AMP Process	ARCiB Process
Jul	Start of financial year	- request donor to enter data	
Aug			- DEA issue updated guidelines
Sep			- line ministries classify budget - donors classify projects
Oct			- DEA compiles Draft ARCiB - MFEDP reviews/comments - Consultation (donors, CSO …)
Nov			- DEA publishes Final ARCiB
Dec			
Jan		- request donor to enter data	
Feb			
Mar	- indicative MTEF & ceilings - guidelines (refering to ARCiB) - briefing workshops		
Apr	- line ministry submissions - final MTEF & ceilings - final submissions		
May	- consolidation of budget - parliamentary approval		
Jun	- publication, including AFS		

DEA should prepare an 'Annual Report on Climate in the Budget' (ARCiB). This should be prepared after the budget has been approved, using the published budget data, plus the latest data from the AMP. The ARCiB should use the standard classification method agreed nationally, based initially on default categories and scores, similar to those in Table 4. However, if budget units wished to conduct CCIA to claim that their H/M/L category or ABS should be higher than the default, then this should be encouraged. Institutional responsibilities for budget integration would be as follows. DEA will need some capacity support, at least in the first couple of years. This could be provided by a Malawi civil society organisation. The DEA would be responsible for preparing guidelines, including the default H/M/L categories and ABS, as well as providing technical support and quality control.

Line ministries should classify their activities and projects using the guidelines and reference table. This should be reflected in a line ministry Annual Report on CC (ARC), that reviewed past and budget CC expenditure, expected adaptation benefits and proofing needs. They would also conduct CCIA if they wished to argue for a different classification to the default. This would normally use the qualitative CCIA method used in this CPEIR. In some cases (probably restricted to large donor projects), it might also use hybrid or quantitative CCIA methods, which involve conducting Cost Benefit Analysis (CBA) with and without CC. DEA would provide technical support to line ministries and quality control of the CCIA work done by line ministries.

Districts should classify their programmes, with support from NLGFC, and should prepare brief Annual Reports on CC (ARCs) covering their activities. This should list what the district has done in the past and in the most recent budget and the expected adaptation benefits. It may also wish to include a 'proofing review' that defines the level of risk from CC and the need for proofing. DEA staff at District level should support this work.

NLGFC should compile the District ARCs into a consolidated statement that will feature in the ARCiB. NLGFC should collaborate with DEA to check the quality of this work, perhaps focusing on 'outlier' districts that have higher or lower than average CC expenditure.

Donors should be encouraged to use the same classification system, aligning their projects with government departments and/or sub-programmes, and hence adopting the default CC classifications, unless they wished to argue for different categories/scores.

MFEPD should review the ARCiB and decide how to refer to it in the guidelines for the following budget year.

5.3 The Effectiveness of CC Expenditure

Because the majority of CC expenditure is development expenditure that generates additional benefits from adaptation and/or mitigation, the practices for assessing the effectiveness of this expenditure (ie CC Impact Appraisal, or CCIA) should be based on the practices that are already in place for assessing the effectiveness of development expenditure. This means that, for most expenditure, CCIA should be based on the standard practices of results based budgeting, which require projects and programmes to define the expected results of the expenditure, generally in a logframe structure that distinguishes between output, outcomes and impact. The fact that these practices are still being developed and consolidated within the Malawi planning and budget system means that CCIA will need to be added as an integral part of the reforms to improve results based budgeting. This will have the advantage that CCIA will be able to support the wider reforms, although it does also mean that CCIA will initially need to have modest aspirations, since there is still limited experience with logframes and other techniques of results based budgeting.

CCIA should make it possible to go beyond the high-mid-low CC relevance classification and to estimate the Adaptation Benefit Share (ABS), which complements the high-mid-low categories. This should use the default scores presented in Table 4 as a starting point and allow budget units to conduct their own CCIA assessments and argue for higher scores, if they feel that this is justified. Qualitative CCIA is relatively easy to undertake and can be encouraged widely across government, at both national and district level, with support from DEA. Quantitative and hybrid CCIA is more demanding and should be reserved for the most important CC projects, especially if they are already subject to some form of quantitative appraisal.

This CPEIR has piloted some of the rapid practical methods of CCIA that can be used to build a Malawian approach. This approach should cover both: a) ongoing development activities that simply become more important with CC, and hence should receive more budget; and b) development activities that require additional budget to ensure that activities are proofed from the risks associated with CC. Some projects and programmes may contain elements of both of these and maintaining the distinction is essential to clearly understanding the implications of CC for the budget.

The use of appropriate CCIA methods will help encourage precision in analysis about how people and ecosystems benefit from public expenditure and the implications of CC for these benefits. This will help avoid greenwashing and appeals to support expenditure on any project that has objectives related to CC, regardless of the effectiveness of the contribution to adaptation and/or mitigation. In so doing, the use of CCIA will build credibility and confidence in the public response to CC, especially amongst MFEDP.

DEA should promote a programme of CCIA, focusing initially on voluntary qualitative CCIA in a few pilot ministries and districts and deepening to include new ministries and more demanding methods, with the objective of introduce some mandatory requirements. DEA should prepare guidelines for CCIA which explain the methods and the circumstances when each method should be used. These should be respected by government and donors.

Line ministries should be invited to build capacity in the use of CCIA in project and budget preparation and appraisal. This should start with a few pilot ministries that are most affected by CC.

Districts should encourage the use of CCIA in budget submissions as part of their efforts to demonstrate to central government that they are capable of responding to CC and deserve the funding required to support that effort. This should be supported by simplified CCIA Guidelines.

This CPEIR has provided some illustration of the potential content of a Malawian system for understanding, and hence improving, the effectiveness of adaptation and/or mitigation. It has also identified some of the challenging areas, including cross-sectoral programmes, such as those related to income generation, poverty, food security and child and youth policy. The Malawian approach to CCIA needs to recognise these challenges and find a way of going beyond the simple identification of causal linkages. This could include classifying the implications of CC as strong, medium and weak, which can then be used to guide sensitivity assessments in CCIA work.

5.4 Strategic Coordination

National CC Investment Plan (NCCIP) and National CC Management Plan (NCCMP). The current NCCIP provides a list of key priority projects (costing MWK 31bn or USD 43m) and a long list of components (costing MWK 692bn or USD 955m over 6 years). Most of these are for activities that are already covered in the development budget, but the NCCIP is unable to identify the level of current funding for these activities. The CPEIR illustrates a methodology that could help with this. The new projects and components should relate to any existing activities and the proposed costs of new projects and components should be described as the required increase in expenditure on existing projects, as well as any expenditure on new projects. This may need some revision in the costs proposed, since new funding requirements will need to be consistent with affordable increases in expenditure. The new NCCIP will thus become a first CC Financing Framework (CCFF) and should be guided by experience with CCFFs in other countries.

DEA should update the NCCIP, after consulting with MFEDP about the appropriate expenditure ceilings to use. DEA should also update the NCCMP to be consistent with the Mainstreaming Action Plan (CCMAP) presented in chapter 6.

Adaptation Gap. The CPEIR suggests that the Adaptation Gap at FY17 levels of adaptation expenditure is likely to be between 80% and 90%. This is estimated using the assumption that the current levels of CC expenditure are maintained, when expressed as a percentage of total public expenditure. The government of Malawi will want to reduce this gap in the short to mid term, possibly to around one-third. Some countries have prepared Strategies for Reducing the Adaptation Gap (SRAGs), which typically include the following elements:

- improving the effectiveness of climate expenditure in delivering adaptation (eg using CCIA)
- some shifting in the balance of public expenditure to give adaptation a higher priority, which could include indicative per capita norms that could guide district targets
- introduction of policies to encourage the private sector to fund more adaptation
- promoting international funding of adaptation.

DEA should prepare a Strategy for Reducing the Adaptation Gap (SRAG). This should include targets for the reduction in the adaptation gap and methods to be used for achieving these targets.

Increased International Funding. Many donors (eg DFID and WB) have changed their CC programming methods. Some dedicated CC projects are still being funded, but these focus mainly on capacity building, information and research. The large majority of international funding for CC is now integrated as part of routine development funding. If Malawi has effective domestic methods for identifying and guiding this integrated CC funding, then it will be much better able to facilitate and encourage international funding for CC. The NCCIP can be updated to provide a clearer description of current CC support for Malawi and, based on that, to indicate which areas of support need to grow fastest.

DEA should lead the preparation of a Donor Orientation Report on CC (DORC), which provides donors with guidance on the priority sectors and types of CC funding. The DORC should include a request to donors to include CCIAs of their projects when seeking approval from government, including the estimation of the ABS.

Devolution of Ministry Expenditure. Some ministries are in the process of devolving functions to the district level, but this is an ongoing process that is not straightforward. Sectors are moving slowly and not uniformly in funding their operations directly at the district level and it would require a dedicated study to understand what is currently happening. Successful devolution is primarily a development issue and seems to have no particular CC angle.

Devolution should be driven primarily by development policy and not by CC policy. However, the actions recommended in this CPEIR, including, in particular, the CCIA work, should help to facilitate broader devolution by improving the capacity of districts to plan.

Fiscal Transfers. The Training of Trainers (ToT) event raised the question of whether the fiscal transfer formula could be used to integrated CC into planning. The formula for fiscal transfers to districts is apparently being reviewed and there are opportunities for including indicators relating to CC. In India, the latest reforms of the formula for fiscal transfers to State governments included forest cover, which had an 8.5% weight in the formula. A similar approach in Malawi could be effective in drawing attention to deforestation, which is a concern both for CC and for routine development. Other indicators are also possible, including indicators of vulnerability to CC. Introducing indices of vulnerability to drought and flood in the fiscal transfer formula would be a powerful way of raising awareness, creating incentives for district politicians and building consensus over the most reliable, objective and effective way to measure the indices.

DEA should initiate a brief review of the options for including a CC and/or environment indicator in the next revision of the fiscal transfer formula.

Private Adaptation. Public-private collaboration is usually an important feature of a comprehensive CC strategy and can help to reduce a country's dependence on public expenditure, in its efforts to close the Adaptation Gap. In Malawi, this is likely to involve: private participation in utilities; public policy to encourage new labour practices that help reduce the impact of heat stress on labour productivity; and information services.

DEA should provide a guidance document for the private sector to highlight the risk and opportunities associated with CC.

Reporting for the Paris Agreement. The only legally binding element of the Paris Agreement is to report on progress in delivering the Nationally Determined Contributions (NDCs). For mitigation, this involves reporting on greenhouse gas emissions. For adaptation, there is still no agreed method for reporting. The CPEIR provides a method for reporting on CC expenditure and on the expected impact of the expenditure in reducing future L&D from CC. The CPEIR provides Malawi with a basis for

playing a leading role in developing a pan-African approach to future international negotiations on CC.

Monitoring the Impact of CC Expenditure. It is never possible to monitor the full impact of most development and adaptation expenditure, because most benefits continue for several decades after the project stops. The best that can be achieved is to monitor the outputs and outcomes and then make projections of the expected impact, if the benefits are sustained. In most cases, the main risks to sustained outputs are the sustained effectiveness of institutions and policies. This is true of most development expenditure, but it is especially true of adaptation impact because that impact is small in the first years of expenditure and grows steadily as CC itself happens. For most adaptation projects that responding to droughts, floods or rainfall variability, less than 5% of the expected benefits are experienced during the lifetime of the project.

Furthermore, the most useful monitoring indicators for adaptation expenditure are usually the indicators that also report on development. For example, the area irrigated or the use of water or energy saving methods, are indicators of development that also deliver adaptation benefits. Monitoring these indicators should be done within the routine development monitoring practices of government. The additional evidence required to determine expected adaptation impact should focus on two elements: a) the latest evidence of ongoing CC; and b) the evidence on whether the institutions required to secure adaptation benefits are likely to be sustainable. This could include institutions responsible for planning and budgeting as well as for the delivery of project benefits. Using this monitoring evidence to assess potential adaptation impact requires specialist skills and will need to be led by DEA. In practice, there are few countries in the world that succeed in doing this analysis in a regular annual cycle and it is mostly left to occasional evaluation studies to provide this analysis.

National Climate Fund. The government is considering proposals to create a National Climate Fund (NCF). International experience with climate funds is mixed, with early success in some countries (eg Rwanda) and major challenges in others (eg Bangladesh). There can be a useful role for an NCF in funding dedicated CC activities, mainly limited to 'soft' activities including studies, information services and capacity building. However, from a mainstreaming perspective, using an NCF to fund activities that might be expected to feature in development funding is likely to be counterproductive, undermining the integrity of the national planning and budgeting system and distracting scarce planning skills. Tanzania has considered establishing a National Climate Finance Framework, rather than a Fund, which would manage some central funds for dedicated activities, but would primarily keep a monitoring and coordinating role to ensure that CC was effectively mainstreamed into development expenditure, producing parallel climate expenditure reports.

6 CC Mainstreaming Action Plan

Table 24 presents a CC Mainstreaming Action Plan (CCMAP) for integrating CC into planning and budgeting, building on the recommendations in the previous chapter. The CCMAP could be used to produce an updated version of the National CC Management Plan. The CCMAP focuses on the next two and a half years and on influencing the FY20 and FY21 budgets. In general, the CCMAP avoids expecting that Line Ministries (LMs), District Local Councils (LCs) and MFEDP will undertake substantial analytical work during April, May June each year, when they will be focusing on the budget preparation and when CCMAP focuses on activities related to budget preparation.

Table 24 CC Mainstreaming Action Plan

Calendar Year	2019		2020				2021					
Budget Year	**FY19**		**FY20**				**FY21**				**Long Term**	**Cost US$K**
	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ		
Budget Preparation												
Line Ministries (with technical support from DEA)												
Qualitative CCIA for classification and design			pilot LMs				all LMs					50
Reference to CCIA/classification in budget submissions												0
Hybrid CCIA for project, with donors							pilots					30
CCIA and ARC scaled to all LMs												30
Annual Report on CC (ARC-LM)				pilot LMs				all LMs				30
District Local Councils (with technical support from DEA)												
Qualitative CCIA for programmes/projects			pilot LCs				all LCs					50
Reference to CCIA/classification in budget submissions												0
Annual Report on CC (ARC-LC)				pilot LCs				all LCs				25
DEA (with international support)												
National Guide on CC Classification	prepare		pilot LMs/LCs				all LMs/LCs					15
National Guide on CCIA	prepare		pilot LMs/LCs				all LMs/LCs					20
Coordination of the CCMAP												50
Awareness programme on CC science and mainstreaming												10
Annual Report on CC in the Budget (ARCiB)			pilot									50
Update of the NCCMP and NCCIP												30
Second Phase CPEIR for selected LMs												30
Strategy for Reducing the Adaptation Gap (SRAG)												50
Guidance document for private sector adaptation												10
Paris Agreement NDC Progress Report												50
MEFDP (with technical support from DEA)												
Instructions to LMs/LCs on classifying cost centres												10
Instructions to LMs/LCs on CCIA in budget proposals												10
CC chapter in new MGDS												5
Budget guidelines refer to Malawi's CC risks & response												5
Donor Orientation Report on CC (DORC)												30
Donors (with guidance from MEFDP and DEA)												
Donors select a few key CC projects for quantitative CCIA												0
Colour Code											Total	590
Classification and analysis of expenditure												
Effectiveness and CCIA												
Strategic Coordination												

Line Ministries (LMs). Whilst DEA plays a lead coordinating role, the foundation of the CCMAP is the work that will be done in LMs to integrate CC into their sectoral planning and budgeting activities. This will be based on: a) the classification of cost centre expenditure using the standard national system determined by DEA; and b) the use of qualitative CCIA as a way of sensitising the design of projects and programmes to CC and of using this to strengthen the way the expenditure is classified. The methods used will build on those piloted by the CPEIR. DEA will provide technical support, with some international assistance, at least in the pilots, but the work will be done in partnership with LMs, in order to build capacity. It is therefore essential that any participating LM understands the value of the work for their operations. They may be motivated partly by the possibility of raising

additional funds, but the primary motivation for participating should be to improve the effectiveness of existing and planned activities. The work will be done for all projects under the responsibility of the LMs as well as for each cost centre.

LMs will also produce an Annual Report on CC (ARC), as described above, using the evidence produced in the CCIA and classification work.

The first three quarters of each fiscal year (ie July to March) will be devoted to analytical work, leaving the last quarter (ie April to June) to focus on ensuring that this preparatory work features in budget submissions. DEA will provide technical support and quality control. The CCMAP foresees starting this work in FY20 with a few key LMs and scaling it up in FY21 to the other LMs involved in CC. Experience in other countries suggests that keeping to this timetable will require proactive management by DEA, which significant international support, especially initially, since it is easy to slip a year by missing key dates for obtaining support from LMs and recruiting international support.

District Local Councils (LCs). The pattern of work with LCs will be similar to that with LMs, but the level of detail will be more limited, because of capacity constraints. It will not be appropriate to pilot the use of hybrid CCIA methods in the short to mid-term, given the complexity of this work, although some LC officials may wish to participate in hybrid CCIA work that is led by LMs and/or donors.

DEA. The DEA will provide overall coordination of the whole CCMAP, which is a substantial task and will require budget and international assistance, especially in the first year.

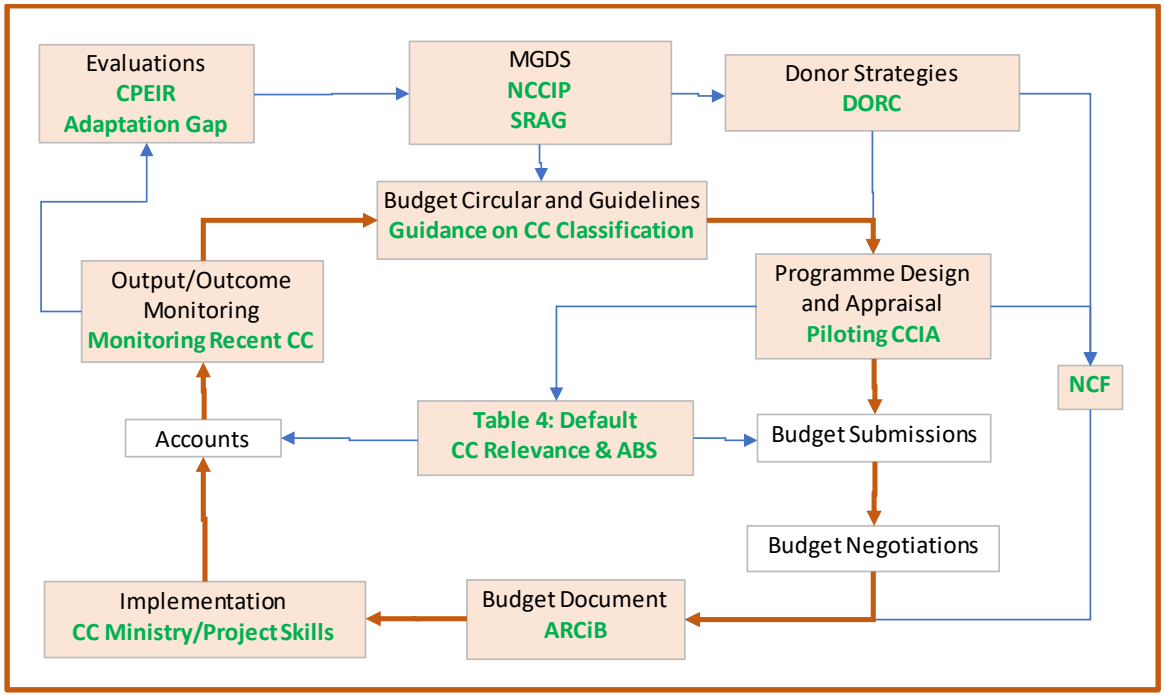
1. DEA should produce National Guidelines for CC classification and CCIA in the first six months of 2019. These will specify activities for both LMs and LCs. DEA will then provide technical support for LMs and LCs in using the Guidelines, which will happen during the first nine months of each fiscal year, using FY20 for pilot LMs/LCs and scaling up to all LMs/LCs in FY21.
2. The ARCiB should be produced during the first quarter of each fiscal year (ie July to September), using the latest budget data.
3. The work on the NCCIP can start immediately once DEA key expertise has completed the work on the ARCiB, which should ideally be in October 2020. This should draw heavily on the FY19 and FY20 data in the ARCiB, but also include a forward financing framework (or CCFF). DEA should provide technical leadership, but the CCFF in the NCCIP will require collaboration with MFEDP as the ceilings will need to be consistent with the MTEF.
4. The second phase CPEIR can be done in parallel with the NCCIP update as there will be synergies between the two activities.
5. The SRAG will build on the updated NCCIP and add further insight and focus on the extent to which the NCCIP will reduce the Adaptation Gap and what additional funding may be required from the private sector.
6. The NDC Progress Report required under the Paris Agreement should include reporting on trends in CC expenditure, drawing on the ARCiB.

MFEDP. In many countries, ministries of finance and planning are initially unsure about their role and see CC as the responsibility of the lead technical institution, which is often the ministry responsible for environment, sometimes acting as secretariat to a cross-ministerial council. However, they play an important role in approving and requiring reforms to the planning and budgeting system, to create the demand within the system that ensures that the lead technical institution has the mandate and authority to support mainstreaming. In Malawi, this should involve creating instructions and guidelines to LMs and LCs to use the technical guidelines prepared and supported by DEA. Given their relationship with international partners, MFEDP are also the natural lead institution for the DORC, although this will need to be prepared in collaboration with DEA. The DORC will include a request to donors to conduct CCIA for key projects.

Costs of the CCMAP. Table 24 provides some rough indication of the likely costs of each action. The costs should be considered as indicative and not as accurate costings. The costs of each action are not large, with four major actions costing USD 50,000: the initial work on CCIA by cost centre in LMs; the ARCiB; the SRAG; and the NDC Progress Report). The next size of action have been assigned an indicative cost of USD 30,000 and include: support for ARCs in LMs; support for CCIA in LMs; support for qualitative CCIA in districts; the second phase CPEIR with more data on actual expenditure; updating the NCCIP; and the DORC. In the short term, the costs will include significant international technical assistance as there is still limited experience in Malawi with CC mainstreaming work. Bu the costs assume that, over the next two years, there will be increasing capacity for much of the work to be done nationally, with only limited international input, so that the balance of technical responsibility will shift towards the use of national expertise in the mid to long term, which should be more efficient and effective. The total costs amount to USD 590,000, although this should not be considered as an accurate budget figure and more work is required on the detailed Terms of Reference (ToR) for each action, before accurate budgets can be provided.

Figure 40 summarises how the recommendations fit within the broader scope of mainstreaming, as presented in Figure 9. Cells that are shaded include recommendations and the recommendations are in green.

Figure 40 CPEIR Recommendations for Mainstreaming CC into Planning and Budgeting



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Annex 1: Options for Classifying CC Expenditure

There are four main dimensions to the classification of CC expenditure: yes/no; objectives based; benefits based; and typologies. The methods can be applied to expenditure that contributes to adaptation and/or to mitigation.

Yes/No Classification. The first approach to classification screens for whether a project makes any significant contribution to adaptation and/or mitigation. This is an essential starting point and draws the boundaries of what is included in the analysis. It can be considered as a form of screening and usually aims to include even expenditure that includes more marginal contributions. All CPEIR/CCFF work includes this approach.

In theory, yes/no screening should involve a review of the project title, objectives and description. In practice, screening is usually done simply by identifying the broad sector, or sub-sector, of the project, from which it is generally clear whether a contribution to adaptation and/or mitigation is likely to be made.

Objectives Based Classification. The objectives based classification adds more information to the yes/no screening and describes the extent to which CC has been taken into account when designing and approving the expenditure. The level of importance of CC in the objectives of the expenditure is usually referred to as the 'CC relevance'. There are a range of practical applications, including that used by the OECD/DAC climate marker and that referred to in the various CPEIR guidelines documents (Bird, Beloe et al. 2012, Fozzard and Steele 2014, UNDP 2015). This CPEIR has used a classification system that relies on high-mid-low relevance, plus the full relevance category reserved for activities that are devoted exclusively to CC and have no development benefits at all.

- Full relevance is reserved for projects that deal with CC management or research and capacity building (eg 92.03 in the project budget, as reflected in Annex 7 of the 2018 AFS).
- High relevance is for projects that have CCA as the explicit primary objective.
- Mid relevance is for projects that have CCA as an important and usually explicit secondary objective.
- Low relevance projects are normally projects where CCA is a less important or where it is only implicit. In some classification systems, there is a fourth category of 'marginal relevance' which allows for larger projects with only minimal indirect contributions to be registered. This has not been used in Malawi, to keep the classification as simple as possible.

In many CPEIRs, the high-mid-low relevance categories are also associated with percentage scores, typically with ranges centred on 75%, 50% and 25% respectively. This has the benefit of allowing weighted CC expenditure trends to be monitored, which incorporates the very different types of CC expenditure into a single total. This CPEIR avoids using these scores and relies instead on the scores provided by the ABS.

Adaptation Benefit Share. The objectives based classification has become common and is simple and intuitive to use. It is an excellent first step in promoting awareness that CC is likely to have implications for a wide variety of projects. There are, however, two related and important limitations that justify taking a further step in classifying CC expenditure.

- Practical experience with the objectives based classification suggests that it is vulnerable to 'greenwashing', in which the relevance of CC is exaggerated. This may occur to improve access to CC funding or to present a more positive picture of CC expenditure totals. These challenges have led to questions from naturally sceptical Ministries of Finance about the

credibility of objectives based weights. They have also led to questions from developing countries about whether development partners are exaggerating their CC funding to help meet targets, including those related to the Paris Agreement. Another example of the seriousness of this challenge is provided by the difficulties that the Green Climate Fund (GCF) has had in defending its approval of adaptation projects, some of which have been criticised as primarily development, with only limited contribution to adaptation.

- The objectives based classification gives an indication of the extent to which CC is being taken into account when thinking about the objectives of projects. However, it provides no basis for assessing the effectiveness of CC related expenditure in reducing the loss and damage (L&D) caused by CC (ie in delivering adaptation). Therefore, it does not provide a basis for setting targets about the appropriate levels for overall adaptation spending.

To address these challenges, some CPEIRs and CCFFs have added another method of classification, based on the Adaptation Benefit Share (ABS), or the proportion of total benefits that arise from adaptation. The IMDSA describes the benefits based approach as relating to Cost Benefit Analysis (CBA). However, there are more practical and qualitative methods for assessing ABS, which have the best chance of being understood and accepted at district level. Estimation of the ABS requires methods of CC Impact Appraisal (CCIA), which can range from rapid qualitative methods, to hybrid methods to quantitative methods (Climate Scrutiny 2017). An example of the qualitative CCIA is give in Annex 5.

There are a number of further details that can be incorporated into the basic approach described in Annex 5, if required. Firstly, CC sometimes has implications for the costs of a project. This is particularly evident in infrastructure projects that incorporate proofing (eg larger culverts or higher dams), but it may also affect other projects. This can be dealt with by defining the cost as a negative benefit and then showing the implications of taking CC into account (ie adding proofing). Secondly, even for successful adaptation projects, there may be some elements of unavoidable maladaptation, in which the benefits decline and the project increases L&D. In theory, these can be captured by assigning a negative level in the B column. However, in practice, it is rare to work with negative scores in a first CPEIR, not least because it is already difficult enough to introduce effective benefits assessment without opening up politically sensitive debates about maladaptation.

The qualitative assessment of ABS inevitably involves some judgements. Judgements are required not only in assigning scores, but also in the way in which benefits are listed. There is often some overlap between benefits and it can be difficult to define benefits that are mutually exclusive and also comprehensive. This occurs when benefits are listed from various points in the results chain (eg improved yields may be listed as well as improved incomes, when one follows from the other). Also, in the interests of simplicity, it may be justified to omit some of the smaller and/or more indirect benefits. In practice, judgements need to be made to ensure that the listing of benefits has a good overall balance that reflects the relative importance of all the benefits.

The estimate of ABS should not be treated as a detailed, accurate, quantitative estimate. There are theoretical reasons why it is possible to have confidence in the estimate and it does allow for aggregate adaptation benefits to be estimated, which is valuable for CC strategies and targets. But the first purpose of the qualitative benefits scoring method is to provide a structured framework for a debate on the contribution of projects to adaptation. The table in Annex 5 improves the quality of the debate and provides a record of the judgements made by the assessors, which builds credibility in the assessment and invites further refinement. Without such a framework, discussions about the CC relevance of expenditure often slip into repeated and circular arguments that focus on understanding the interconnectedness of development work, but which fail to provide clear indications of the relative importance of adaptation.

Type of CC Expenditure. In addition to the above methods, some CPEIRs also classify expenditure according to its type. In particular, it can be useful to distinguish between hard adaptation expenditure, which leads fairly directly to reduced L&D, and soft adaptation expenditure, which creates the conditions that enable hard adaptation to be effective. The 2017 IMDSA use a typology with four types: adaptation delivery; mitigation delivery; research; and 'systematic observation, technology development and transfer and capacity building'. This is similar to other typologies used in CPEIRs.

Another example of a qualitative typology is the CC and African Political Stability (CCAPS) Project approach, which was used in a CPEIR for Odisha, in India (Peratsakis, Baker et al. 2012). The CCAPS approach distinguishes between: Ambiguous Development or (AD), which is considered of doubtful benefit and may even contribution negatively to CC; General Development (GD), which is primarily for development and has no CC benefits; Capacity Development (CD), which builds resilience but doesn't directly contribute to adaptation; and Climate Oriented Development (CO) which has an explicit objective of addressing CC issues. A score is assigned with AD=0, GD=0.5, CD=1.0 and CO=2.0. The CCAPS system thus adopts elements of the objectives based classification and the typology approach.

Annex 2: Expenditure tables

AFS Annex 7, as classified

Programme and Sub-Programme	CPEIR Sectc	A/M/B	HMLV	ABS	FY17 RE	FY18 AE
03. Water Resources Development and Manage	Water	A	H	25%	14.3	0.3
04. Water Supply and Sanitation	Watsan	A	M	15%	7.7	16.8
07. Energy Generation and Supply	Energy	B	L	5%	4.6	22.3
10. Occupational Safety, Health and Welfare	Labour	A	L	5%	0.1	0.1
01. Decentralization Services	Local	A	L	5%	89.8	180.2
02. Buildings management	Urban	A	L	1%	7.5	0.0
03. Housing management	Urban	A	L	1%	4.9	14.1
01. Agricultural Diversification	Agric	A	H	20%	61.3	0.0
02. Agribusiness Development	Agric	A	L	5%	2.0	0.0
03. Extension Services	Agric	A	M	10%	0.0	2.7
04. Technology Generation	Agric	A	L	5%	0.0	16.4
06. Sustainable Management of Agricultural Lan	Agric	A	H	25%	0.0	0.2
07. Crops Development	Agric	A	M	10%	0.0	80.7
01. Livestock Production	Lvstck	A	M	10%	2.8	1.8
02. Fisheries Production	Fish	A	L	5%	0.1	0.2
02. Disaster Preparedness, Relief and Rehabilita	DRM	A	H	33%	3.5	6.5
04. Coordination of Social Protection Policy	Social	A	L	1%	0.0	0.0
01. Socio Economic Infrastructure	Social	A	L	1%	0.5	0.3
02. Livelihoods and Skills Development	Income	A	M	10%	2.0	1.5
03. Productive Public Works	Income	A	L	5%	13.7	17.0
04. Social Cash Transfer	Social	A	L	5%	1.7	13.7
01. Preventive Services	Health	A	L	2%	8.8	12.7
03. Curative Services	Health	A	L	1%	0.0	0.1
01. Preventive Services	Health	A	L	2%	8.7	0.0
02. Health Promotion Services	Health	A	L	2%	0.3	0.1
02. Community Mobilization and Capacity Buildi	Local	A	L	2%	0.2	0.2
03. Resilience, Livelihoods, and Nutrition	Local	A	L	2%	0.0	0.0
05. Expansion of Community- Based Rehabilitat	Local	A	L	2%	0.0	0.0
06. Vocational Skills Training and Rehabilitation	Local	A	L	2%	0.5	0.0
05. Social Cash Transfer	Social	A	L	5%	0.6	1.5
01. Forestry Management	Forest	B	H	15%	0.0	0.0
02. Environmental Management	Env	A	M	10%	0.1	0.3
03. Climate Change Management	CC	A	F	100%	0.0	0.0
04. Meteorological Services	Env	A	H	25%	0.1	0.2
05. Biodiversity Conservation and Protection	Env	A	L	5%	0.0	0.0
06. Research, Development and Extension Servi	Env	A	L	5%	0.0	0.0
01. Rural Development	Local	A	M	15%	3.0	8.6
02. Sustainable Management of Agricultural Lan	Agric	A	H	20%	2.3	0.0
03. Irrigation Development	Irrig	A	H	25%	3.1	0.2
04. Irrigation Development	Irrig	A	H	25%	22.8	15.7
05. Local Authority Capacity Enhancement	Local	A	M	10%	2.9	0.5
06. Agro-Processing and Value Chain Developm	Agric	A	L	5%	0.0	0.0
09. Greenbelt Initiative	Irrig	A	M	10%	0.0	2.6

AFS Annex 6 (most important 60 out of 119)

PROJECT NAME	Donor	AFS sub-pro	CPEIR Sector	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	8YR Raw	% Tot	8YR Wtd	HML	A M	ABS
Agriculture Sector Wide Approach - Support Pro	WB	49.03	Agric					20.5	8.5	6.8	26.2	62.0	12%	6.2	M	A	10%
MASAF (3 and 4)	WB	60.04	Local			2.4	1.1	15.7	5.0	11.3	20.0	55.5	11%	2.8	L	A	5%
Shire river basin management project ($31.250	WB	4.03	Agric					1.8	8.9	6.8	24.7	42.3	8%	6.3	H	A	15%
National Water Development Programme	WB	4.03	Water	2.9	3.1	0.6	1.0	1.6	12.5	2.2	0.0	23.9	5%	3.6	M	A	15%
Smallholder Agriculture Infrastructure Support	AfDB	60.01	Irrig		0.8			1.4	3.3	6.5	7.0	18.9	4%	1.9	M	A	10%
Smallholder Irrigation and and Value Addition	AfDB	96.03	Irrig						3.9	6.2	6.9	17.0	3%	2.5	M	A	15%
Energy Sector	WB	13.07	Energy							11.6	4.5	16.1	3%	0.8	L	M	5%
Recovery - Public Works Programme	WB	60.03	Local	0.5	1.1				1.0	6.3	3.9	12.9	2%	0.6	L	A	5%
Energy Sector Support Projects	WB	13.07	Energy					1.9	10.7		0.0	12.6	2%	0.1	L	M	1%
Irrigation, Rural Livelihood and Agriculture (IR	WB	96.03	Irrig	0.1	1.2	3.1	1.4	2.8	2.8	0.6	0.0	11.9	2%	3.0	M	A	25%
Sustainable Agricultural Production Programm	IFAD	49.07	Agric							4.7	4.8	9.5	2%	1.4	M	A	15%
Agriculture Productivity Program for Southern	WB	49.07	Agric							3.8	5.4	9.3	2%	0.9	M	A	10%
Farm Income Diversification Program	EU	49.01	Local	0.5	0.6	0.6		3.5	3.1	0.6	0.0	8.8	2%	1.8	M	A	20%
Construction of Bwanje Dam	EU	96.03	Irrig								7.5	7.5	1%	1.9	H	A	25%
Green Belt Initiative		96.09	Irrig	0.1	2.0	0.2	1.0	0.4	2.0	1.4	0.4	7.5	1%	1.9	H	A	25%
Competitiveness and Job Creation Support Proj	AfDB	60.02	Local					0.2	1.6	2.4	2.6	6.8	1%	0.3	L	A	5%
National Water Development Programme	AfDB	4.03	Water				1.3	0.1	5.1		0.0	6.5	1%	1.0	M	A	15%
Support to Local Economic Development (MASA	KfW	60.02	Local		0.2	1.0	1.0				3.9	6.1	1%	0.3	L	A	5%
Sustainable Rural Water Supply and Sanitation	AfDB	4.04	Watsan						0.0	0.1	6.0	6.1	1%	0.9	M	A	15%
Rural Livelihoods and Economic Enhancement	IFAD &	96.01	Local					0.8	1.2	1.6	1.5	5.1	1%	0.5	L	A	10%
Songwe River Basin Development Programme	AfDB	96.03	Irrig	0.1	0.7	0.7	0.5	1.0	0.3	1.2	0.1	4.7		1.2	H	A	25%
Sustainable Agricultural Production Programme	IFAD	49.07	Agric					0.9	3.8		0.0	4.7		0.7	M	A	15%
Small Farms Irrigation Project - Phase II (SFIP II	BADEA	96.03	Irrig	0.1	0.1	0.1		0.9	2.1	1.0	0.1	4.5		1.1	H	A	25%
Local Development Fund II (MASAF)	KfW	60.01	Local			0.4	0.4	1.6	2.1		0.0	4.5		0.5	L	A	10%
Rural Livelihood and Economic Enhancement	IFAD &	96.01	Local	0.1	0.1	0.4	0.0	0.8	1.2	1.3	0.0	3.9		0.4	L	A	10%
Irrigation and Rural Water Supply and Sanitati	WB	96.03	Irrig							1.7	1.6	3.2		0.5	M	A	15%
Local Councils Development Part 2	GoM	96.05	Local								3.2	3.2		0.2	L	A	5%
Irrigation, Rural Livelihood and Agriculture (IR	WB	96.03	Irrig					2.8			0.0	2.8		0.7	M	A	25%
Kholombidzo Hydropower Plant	AfDB	13.07	Energy					0.6	0.8	1.4	0.0	2.8		0.3	L	M	10%
LUANAR Capacity Building for Managing Climat	Norway	92.03	CC						0.9	0.9	1.0	2.7		2.7	F	A	100%
National Water Development Programme	Ausaid	4.03	Water			1.8	0.9				0.0	2.7		0.4	M	A	15%
Water Resource Management WB	WB	4.03	Water							0.7	2.0	2.6		0.5	H	A	20%
Programme of Development of Rural Growth Centres		96.01	Local	0.4		0.6	0.6	0.1	0.4	0.3	0.3	2.5		0.3	L	A	10%
Improved Forestry Management for Sustainabl	EU	92.01	Forest					1.6	0.9		0.0	2.5		0.4	M	B	15%
Chitipa Water Supply	BADEA	4.04	Watsan						0.3	1.6	0.5	2.3		0.3	M	A	15%
Energy Sector Support Projects	WB	13.07	Energy					2.2			0.0	2.2		0.0	L	M	1%
Community Social Infrastructure	GoM	60.01	Local						1.0	1.0	0.2	2.2		0.1	L	A	5%
Sustainable Rural Water Supply and Sanitation	AfDB	4.04	Watsan	1.3						0.8	0.0	2.1		0.3	M	A	15%
Food Security Programme for Malawi	EU	96.01	Agric					2.0			0.0	2.0		0.3	M	A	15%
Agriculture Infrastructure and Youth Skills	AfDB		Social								1.9	1.9		0.1	L	A	5%
Agriculture development programme		49.07	Agric		1.8						0.0	1.8		0.2	M	A	10%
Programme of Construction and Rehabilitation of Urba		96.06	Local	0.3	0.4	0.2	0.3	0.0	0.2	0.3	0.2	1.7		0.1	L	A	5%
Aquaculture Development Project (ADP)	AfDB	50.02	Fish						0.1	1.1	0.1	1.3		0.1	M	A	5%
National Water Development Programme		4.03	Water			0.6	0.3				0.0	0.9		0.1	M	A	15%
Rural Industralisation- One Village One Product Progra		96.06	Local	0.2	0.1	0.1	0.3	0.1	0.1		0.0	0.9		0.0	L	A	5%
Climate adaptation for rural livelihood & agric	AfDB	49.03	Agric					0.2		0.5	0.0	0.8		0.2	H	A	20%
Forestry Management for Sustainable Livelihoods		92.01	Forest			0.8					0.0	0.8		0.1	M	B	15%
Rural Livelihoods Support Programme		96.01	Local		0.2	0.3	0.2				0.0	0.7		0.1	L	A	10%
Local Economic Development Project (AfDB)	AfDB &	60.02	Local							0.2	0.5	0.7		0.0	L	A	5%
Lake Malawi Artisanal Fisheries Development Project		50.02	Fish	0.7							0.0	0.7		0.0	L	A	5%
Construction of Multi-Purpose Dams along Shire, Bua a		4.03	Water	0.1		0.3	0.3				0.0	0.6		0.2	H	A	25%
Dispersed Boreholes Construction and Rehabilitation P		4.03	Water	0.1	0.1	0.1	0.1	0.1			0.0	0.6		0.2	H	A	25%
Institutional Development Across Agriculture Food		49.07	Agric	0.5							0.0	0.5		0.0	L	A	5%
Logistics Support for FISP	EU	49.07	Agric					0.5			0.0	0.5		0.0	L	A	5%
Agricultural Extension and Advisory Services Infrastruct		49.03	Agric					0.1	0.1	0.3	0.0	0.5		0.0	M	A	10%
Water Retention Structure	GoM	96.03	Irrig		0.2			0.0	0.2	0.1	0.0	0.5		0.1	M	A	25%
Rural Irrigation Development Programme	IFAD	96.03	Irrig								0.4	0.4		0.1	H	A	25%
Malawi Irrigation Development Support Progra	GoM	96.03	Irrig			0.1			0.0	0.2	0.1	0.4		0.1	H	A	25%
Ground Water Extraction for Rural Piped Wate	GoM	4.03	Water		0.1	0.0	0.1		0.0	0.1	0.1	0.4		0.1	H	A	25%

AMP Projects (most important 60 out of 594)

Project Title	Dono	CPEIR Sect	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	8Yr Ra	8YR W	HML	AM	ABS
Protracted Relief and Recovery Operations (PRRO200692)	Multi	DRM	0.0	0.0	0.0	0.0	0.3	19.0	114	90.2	223.2	67.0	H	A	30%
Second National Water Development Project SIL (FY07)	WB	Water	11.6	3.5	20.2	45.3	41.4	16.4	7.0	0.0	155.6	46.7	H	A	30%
Irrigation, Rural Livelihoods and Agriculture Development F	WB	Agric	5.8	7.3	18.0	22.6	21.2	11.8	0.0	0.0	108.8	27.2	H	A	25%
Emergency Operation (EMOP200608) - Targeted Relief Food	Common F	DRM	0.0	0.0	0.0	0.0	56.6	0.4	0.0	0.0	57.0	17.1	H	A	30%
Enhancing Community Resilience Programme	DfID	CC	0.0	0.0	1.1	5.4	3.0	3.0	15.6	5.4	33.4	10.0	H	A	30%
Malawi Floods Emergency Recovery	WB	DRM	0.0	0.0	0.0	0.0	0.0	0.0	29.0	0.0	29.0	8.7	H	A	30%
Shire River Basin Management Program (Phase 1 and GEF)	WB	Agric	0.0	0.0	0.0	0.0	0.0	17.3	12.2	3.5	33.0	8.3	H	A	25%
CRS-WALA: LAND AND WATER MANAGEMENT - Lilongwe	USAID	Water	0.0	7.8	7.8	11.4	0.0	0.0	0.0	0.0	27.0	8.1	H	A	30%
CRS-WALA: LAND AND WATER MANAGEMENT - Dedza	USAID	Water	6.7	6.5	6.5	5.2	0.0	0.0	0.0	0.0	24.9	7.5	H	A	30%
Lake Chilwa Basin Climate Change Adaptation Programme	Norway	CC	1.0	1.2	1.5	1.7	0.6	0.6	0.5	0.0	7.2	7.2	F	A	100%
ASWAp Pooled Trust Fund (Second Additional Financing to	DfID	Agric	0.0	0.0	0.0	0.0	41.1	7.2	9.2	7.5	65.0	6.5	L	A	10%
National Water Development Program (Loan)	AfDB	Water	1.3	2.6	5.2	5.5	4.4	2.7	0.0	0.0	21.6	6.5	H	A	30%
Agriculture - Farm Input Subsidy Programme	DfID	Agric	0.0	0.0	30.9	10.4	20.9	7.6	3.1	0.3	110.7	5.5	L	A	5%
LUANAR Capacity Building for Managing Climate Change Pr	Norway	CC	0.0	0.0	0.0	0.7	1.2	1.7	1.4	0.5	5.4	5.4	F	A	100%
CRS-WALA: LAND AND WATER MANAGEMENT - Blantyre	USAID	Water	4.5	4.2	4.2	3.6	0.0	0.0	0.0	0.0	16.4	4.9	H	A	30%
Food Security Programme - Foreign Exchange Facility	EU	Agric	11.9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	23.9	4.8	M	A	20%
Smallholder Irrigation and Value Addition (GAFSP)	AfDB	Irrig	0.0	0.0	0.0	0.0	1.1	2.6	8.8	3.2	15.7	4.7	H	A	30%
National Water Development Program - AusAID	Australiar	Water	0.0	1.5	2.0	10.5	0.0	0.0	0.0	0.0	14.0	4.2	H	A	30%
Food Security Programme for Malawi 2004-2009	EU	Agric	0.0	0.0	0.0	0.0	19.8	0.0	0.0	0.0	19.8	4.0	M	A	20%
CRS-WALA: LAND AND WATER MANAGEMENT	USAID	Water	11.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	11.5	3.5	H	A	30%
Community Based Rural Land Development	WB	Local	1.7	4.8	1.0	0.0	0.0	0.0	0.0	0.0	22.7	3.4	M	A	15%
Support for Strategic Grain Reserves (2012)	Governme	DRM	0.0	0.0	0.0	6.3	4.9	0.0	0.0	0.0	11.2	3.4	H	A	30%
National Water Development Program (Grant)	AfDB	Water	0.1	1.0	5.4	6.7	3.1	0.0	0.0	0.0	16.3	3.3	H	A	20%
DELIVER PROJECT TASK ORDER 3 FOR MALARIA	USAID	Health	9.0	13.2	13.9	16.2	0.0	0.0	0.0	0.0	65.0	3.2	L	A	5%
Small Farms Irrigation Project -phase I & II	BADEA	Irrig	3.1	6.1	1.0	0.0	0.0	0.1	0.1	0.1	10.5	3.1	H	A	30%
Small outgrower sugarcane production	AfDB	Irrig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	3.0	H	A	30%
Malawi Third Social Action Fund (MASAF 3) APL II (LDF Mec	WB	Social	0.0	0.0	6.0	29.4	22.1	2.1	0.0	0.0	59.6	3.0	L	A	5%
MASAF III	WB	DRM	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.9	3.0	H	A	30%
Malaria Round 7	GEF	Health	3.7	23.9	6.2	0.0	8.4	0.0	0.0	0.0	57.1	2.9	L	A	5%
IMPROVING LIVELIHOODS THROUGH INCREASING FOOD SEC	USAID	Agric	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	2.8	M	A	20%
Farm Income Diversification Programme	EU	Agric	0.0	18.3	0.0	0.0	0.0	0.0	0.0	0.0	18.3	2.7	M	A	15%
National Framework for Climate Change in Malawi	Norway	CC	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	F	A	100%
Line of Credit Facility II (USD 50m)	Republic c	Agric	0.0	18.4	29.1	2.0	0.2	0.0	0.0	0.0	49.8	2.5	L	A	5%
Second National Water Development Project	OPEC Func	Water	0.7	2.3	2.0	2.1	1.1	0.0	0.0	0.0	8.3	2.5	H	A	30%
Malawi Third Social Action Fund (MASAF 3) APL II (LDF Mec	WB	Social	28.3	14.0	5.0	0.0	0.0	0.0	0.0	0.0	47.3	2.4	L	A	5%
Agricultural Development Programme Support Project (ADP	WB	Agric	4.9	8.0	5.5	10.9	7.4	-0.1	10.1	0.0	47.0	2.3	L	A	5%
Malaria Round 9	GEF	Health	0.0	16.1	4.3	2.7	1.0	22.1	0.0	0.0	46.3	2.3	L	A	5%
Improving Food Security and Nutrition Policies and Progra	Governme	Agric	2.1	3.1	1.5	1.3	0.9	0.0	0.0	0.0	11.2	2.2	M	A	20%
Strengthening Community Resilience to Climate Change in E	EU	CC	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.9	2.2	2.2	F	A	100%
Rural Livelihoods Economic Enhancement Programme (RLEE	IFAD	Local	2.6	0.7	4.9	1.2	1.0	0.8	1.0	0.4	13.3	2.0	M	A	15%
Rural Livelihoods Support Programme (RLSP)	IFAD	Local	2.2	2.2	1.8	0.4	0.5	0.0	0.0	0.0	13.1	2.0	M	A	15%
Irrigation Rural Livelihoods and Agriculture Development F	IFAD	Irrig	1.3	1.4	0.2	0.0	0.0	0.0	0.0	0.0	6.3	1.9	H	A	30%
Emergency Response	Canadian	DRM	0.0	0.0	0.1	0.8	1.8	2.5	0.7	0.0	5.9	1.8	H	A	30%
Food Security and Developing sustainable livelihoods	Norway	Irrig	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	5.7	1.7	H	A	30%
Strengthening Safety Nets Systems - MASAF IV	WB	Social	0.0	0.0	0.0	0.0	0.0	6.8	26.8	0.0	33.6	1.7	L	A	5%
Integrated water supply and sanitation for central and nort	AfDB	Watsan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	1.6	M	A	15%
Inputs and Maize Market (FA) - previous name was Agricult	DfID	Agric	6.6	9.2	0.1	0.0	0.0	0.0	0.0	0.0	30.7	1.5	L	A	5%
Sustainable Agricultural Production Programme (SAPP) - Lo	IFAD	Agric	0.0	0.0	0.0	0.0	0.4	1.6	3.5	0.6	6.1	1.5	H	A	25%
Smallholder Agriculture Infrastructure Support Project	AfDB	Agric	0.0	2.0	0.9	1.1	1.0	0.0	7.6	2.0	14.6	1.5	L	A	10%
Horticulture and Food Crops Development Project	AfDB	Irrig	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	1.5	H	A	30%
Water and Environmental Sanitation (2008/11)	UNICEF	Watsan	1.9	6.5	0.0	0.0	0.0	0.0	0.0	0.0	9.4	1.4	M	A	15%
PRRO: Food Assistance to Refugees in Malawi (PRRO 20046	Multi	DRM	0.0	0.0	0.0	0.0	0.0	0.5	1.8	2.2	4.5	1.4	H	A	30%
The Project for National Water Resources Masterplan	JICA	Water	0.0	2.0	0.1	0.0	2.3	0.0	0.0	0.0	4.4	1.3	H	A	30%
Humanitarian Food Aid (SGR) 2	DfID	DRM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	1.3	H	A	30%
Improved Forestry Management for Sustainable Livelihoods	EU	Forest	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	1.3	M	A	15%
Agricultural Development Programme - Support Project	Norway	Agric	1.3	2.5	2.0	0.5	0.0	0.0	0.0	0.0	8.2	1.2	M	A	15%
Technical assistence to the Rural Infrastructure Developme	EU	Irrig	0.0	0.0	0.0	0.5	2.9	0.4	0.2	0.0	4.1	1.2	H	A	30%
Songwe River Basin Programme (NEPAD ippf, AWF-Local, AV	AfDB	Irrig	0.0	0.0	0.2	0.0	0.0	0.0	3.7	0.0	4.0	1.2	H	A	30%
Technical Cooperation / the Community Vitalization and Af	JICA	Forest	1.6	2.0	3.5	0.0	0.0	0.0	0.0	0.0	7.9	1.2	M	B	15%
The Project for Promoting Catchment Management Activitie	JICA	Water	0.0	0.0	0.0	1.3	1.0	1.1	0.2	0.3	3.9	1.2	H	A	30%

Annex 3: Projects Reviewed in Nkhata Bay, Ntcheu and Zomba

The table below lists the projects reviewed in the three pilot districts. The summary results of the qualitative CCIA are provided below the table.

Table: Donor Projects

Dura-tion	Total project cost	Aim	Narrative description
Programme for Rural Irrigation Development (PRIDE). IFAD. Found in: Nkhata Bay and Zomba Districts			
2015-2022 (New in Nkhata Bay and Zomba; started Zomba in Dec. 2017)	USD 83.95 million	To enhance the resilience of rural communities to food insecurity and adverse effects of CC in the northern and the southern regions of Malawi.	- Developing climate-smart land and water management systems for the smallholder farmers engaged in rain-fed agriculture and cultivating on irrigated land. - Establishing and strengthening the capacity of the Water Users' Association to manage, operate and maintain irrigation schemes for appropriate land and water governance. - Building the capacity of the smallholder producers through farmer business schools so they can take advantage of the market opportunities. - Promoting market linkages through value chain analysis to identify suitable crops and commodity platforms to bring together all actors in value chain.
Shire River Basin Management Program Project. WB. Found in: Ntcheu and Zomba Districts			
2012-2019	USD 136.30 million	To develop Shire River Basin planning framework to improve land and water management for ecosystem and livelihood benefits in target areas.	- Financing development of a modern integrated Shire Basin knowledge base and analytical tools, as well as well-planned structured stakeholder consultation processes, in order to facilitate investment planning and systems operation. - Rehabilitating and managing targeted sub-catchments and protected areas for reduced erosion and improved livelihoods. - Improving regulation of Shire flows and strengthening climate resilience through new investments in water infrastructure.
Malawi Floods Emergency Recovery Project (MFERP). WB. Found in: Ntcheu and Zomba Districts			
2015-2019	USD 80.00 million	To sustainably restore agricultural livelihoods, reconstruct critical public infrastructure to improved standards in the flood-affected districts, and improve the Government of Malawi's disaster response and recovery capacities.	- Labour-intensive community infrastructure repair and restocking of the strategic grain reserve. - Rehabilitating and reconstructing infrastructure, including roads and bridges, irrigation and rural water supply and education and health facilities, as well as carrying out water resource management. - Promoting disaster resilience, including institutional strengthening and multi-sector design of disaster resilient infrastructure.
Agriculture infrastructure and youth in agribusiness project (AIYAP). AfDB. Found in: Nkhata Bay District			
2017-2022	USD 19.36 million	To address the twin problems of food security and high rate of youth unemployment significantly identified in the Malawi Growth and	- Irrigation Infrastructure and Watershed Management. - Crop Production, Value Addition and Youth Entrepreneurship. - Agro-cooperatives Development for Employment Creation. - Project Management and Institutional Strengthening.

Dura-tion	Total project cost	Aim	Narrative description
		Development Strategy (MGDS, 2011 - 2016).	
Sustainable Agriculture Lead Farmer Programme (SALFP). Norway. Found in: Nkhata Bay District			
2014-2019	USD 8.5 million	Aims to reduce poverty and vulnerability to CC of households and ensure improved livelihoods of rural communities in the targeted areas through the lead farmer approach.	- Increasing market access and entrepreneurial skills among small-holder farmers through strengthening commercial-oriented farmer groups, increasing volumes of both agro-processed and non-processed products. - Improving agribusiness practices adopted. - Improving market access to rural communities.
Fourth Social Action Fund Strengthening Safety Net Systems Project for Malawi (MASAF IV). A component of LDF, funded by WB. Found in: Nkhata Bay, Ntcheu and Zomba Districts.			
2014-2019	USD 32.8 million	Aims to strengthen to strengthen Malawi's social safety net delivery systems and coordination across programs.	- Productive safety nets component focusing on three productive safety net programs: (a) productive community driven public works which build productive community assets and provide temporary employment; (b) livelihood and skill development interventions for poor households, and (c) social cash transfers for those who are most vulnerable and labour constrained, including the elderly, disabled, and sick. - Systems and capacity building to strengthen unified registry, targeting and management information systems, capacity building, technical assistance, training, staff and equipment including for the safety net platform under the local development fund mechanism well as for social cash transfer program. - Project management component to build additional capacity development, harmonization and training in community and watershed management.
Implementing urgent adaptation priorities through strengthened decentralised and national development plans (ADAPT PLAN), UNDP. Found in: Nkhata Bay, Ntcheu and Zomba Districts			
2015-2019	USD 4.5 million	Aims to reduce vulnerability to the adverse impacts of CC, including variability, at local, national, regional and global level, and to increase adaptive capacity to respond to the impacts of CC, including variability, at local, national, regional and global level.	- Strengthening awareness and ownership of adaptation and climate risk reduction processes at local level. - Carrying out participatory vulnerability and adaptation assessments with target communities to prioritise CC adaptation measures focusing on livelihoods improvement. - Supporting diversified and strengthened livelihoods for vulnerable people in Nkhata Bay, Zomba and Ntcheu through development of CC adaptation capacity and incentivised Community Adaptation Action Plans (CAAPs) - Mainstreaming CC adaptation in broader development frameworks at country level and in targeted vulnerable areas. - Conducting Climate Public Expenditure and institutional analysis to determine CC Adaptation expenditures and gaps within district level budgets.
Irrigation Youth Empowerment Project. African Union. Found in: Ntcheu District			
2018 - Not	Not avail-able	Aims to empower the youth by improving water productivity	- Increasing crop productivity per unit water and energy used - Reducing consumption of fossil fuel and grid based electricity and reducing green-house gas emissions.

Dura-tion	Total project cost	Aim	Narrative description
avail-able		through use of deep micro irrigation systems.	- Adopting climate smart irrigation among vulnerable farmers - Reducing unemployment for young men and women
Malawi Drought Recovery and Resilience Project (MDRRP). WB Found in: Ntcheu and Zomba Districts			
2016-2021	USD 104 million	Aims to support the Government of Malawi to meet the immediate food security and livelihoods restoration needs of the communities affected by drought and promote recovery and resilience in key affected sectors.	- Improving Food Security and Sustainable Livelihoods by improving agricultural productivity, enhancing cultivated area under assured irrigation and expanding livelihood options for vulnerable populations. - Enhancing Drought-Resilience and Preparedness by Rehabilitating and Augmenting Critical Water Supply Infrastructure; Strengthening Water Resource and Catchment Management; Strengthening Drought Resilience. - Allowing for rapid reallocation of project proceeds in the event of future natural or man-made disaster or crisis that has caused or is likely to imminently cause a major adverse economic and or social impact during the life of the project.
The Sustainable Rural Water and Sanitation Infrastructure Project (SRWSIP) for improved health and livelihoods. AfDB. Found in: Ntcheu District			
2014-2019	USD 25.61 million	Aims to spur socio-economic growth in Malawi by improving health and livelihoods of the marginalised rural population through provision of sustainable water supply and improved sanitation.	- Increasing access to clean and sustainable water and improved and inclusive sanitation. - Improving resilience of water resources. - Sustainable community management of water supply and sanitation facilities.

NKHATA BAY

Name of Programme:	AIYAP
Nature of Underlying CC Impact on People and Ecosystems:	Amount of rainfall is changing. Used to have rivers flowing throughout year but not rivers are drying. Rainfall is now unpreditable.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Reduction on pressure on natural resources because households have alternative sources of livelihoods	3	Will lead to increased water table and more vegetation cover protecting soil from run off. In areas where rainfall is reduced, they will still be able to maintain the water table to a level that it should be. If soil not protected by vegetation, the sun will burn off water through evaporation.	H
Increased income from afforestation, crop production, animal farming, bee keeping etc.	3	Poverty will increase with climate change as income from climate-affected livelihoods will be more variable. Therefore benefit will stop households being so vulnerable to climate change.	M
More diverse income sources for farmers e.g. fish ponds.	3	Households will be able to do many things so less vulnerable to shocks	H
Improved nutrition because introducing a lot of food types (e.g. meat, fish, crop types)	2	It will be harder to achieve higher nutrition when community are affected by climate cahange. Increased food types would improve their nutriton	H
Improved soil and water conservation through conservation agriculture	2	Improving availability of water and soil during time of drought.	H
Improved knowledge and skills to manage the ecosystem	2	There is a direct impact of climate change on the ecosystem so important it is managed well. Understanding of benefits of natural resources and the ability to manage the natural resources is therefore increasingly important.	M
Increased youth and women employment through agricultural production and business skills training	3	With climate change comes economic hardship so by improving employability when there is climate change it will have an increased benefit. But it is smaller additional benefit. Youth and women are more vulnerable to climate change.	M
Irrigation and infrastructure provided for communities leading to increased agricultural production	3	With climate change comes reduced and more unreliable rainfal, which affects crop production. There is therefore an increased benefit through irrigation enabling people to continue to grow crops and feed themselves.	H
Adaptation Benefit Share (ABS)			21%

Name of Programme:	Adapt plan 2014-2019 (delayed starting to 2016)
Nature of Underlying CC Impact on People and Ecosystems:	The livelihoods in Nkhata Bay district are highly dependent on rainfall. Rainfall will be more variable. The district rely on 3 main cash crops: cassava, bananas and rice, which require predictable rainfall. Sometimes flooding is also an issue in distrct.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved food security through irrigation and crop diversification	3	With climate changem it is even more important to have crop diversification and irrigation as erratic rains will have a direct impact on crop production and food security.	H
Increase in income generation for households through diversification	3	The more sources of income available, the more resilience to climate change shocks	H
Communities have increased access to infomration on climate change so enables them to plan their livelihhoods better	3	Communities have increased access to information on climate change which enables them to plan their livelihoods better. Access to information can assist them with coping measures.	H
Access to sustainable clean water supply	2	During the erratic rains the community needs to have access to reliable water	H
Increased water retention due to forest increase and water shed management	1	This one is connected to sustainable water supply (above). The benefit ultimately leads to increased access to water which is critical with climate change. The watershed management and afforestation also reduces run off and environmental degredation which can cause surface runoff and floods when there is high rainfall	H
More infrastructure for community including meeting centre and bakery	1	Enables community to diversify their income by making use of community infrastructure facilities. Diversification enables households to adapt better to climate change.	M
Increased participation of women in committees	1	Women are the ones that are most affected by climate change. They can participate in decision making on water usage. Therefore this benefit is directly related to climate change.	H
Adaptation Benefit Share (ABS)			23%

Name of Programme:	LDF - MASAF IV
Nature of Underlying CC Impact on People and Ecosystems:	With climate change the communities have noticed that rainfall patterns have changed significantly which has affected water levels in lake and fish population and sporadic rainfall has taken place which has affected agricultural production. The impact of
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Alternative and diverse sources of income for the households	3	Reliance on natural resources for livelihoods so important that they can have more than one source of income, reducing the risk of a climate shock.	H
The development of community assets to be used by all community members (e.g. fish ponds, roads)	2	Largely the proejcts are road projects because of the types of terrain. Communities are quite spaced apart so accessibility is prioritised. Because of that there is no big additional benefit.	L
Community ownership of the programme to maintain and ensure relevance	2	None	None
Households are able to amass assets at the household level (e.g. livestock, motocycles)	2	There would be some difference in benefit as assets may be used to diversify income and become more resilient. But not all assets will have benefits.	M
Increase in skills and technical know-how that can be used beyond the projects	1	None	None
Increased income for the household	3	Income makes them more resilient and cushions them against the affects of climate change.	H
Adaptation Benefit Share (ABS) ignoring costs			16%

Name of Programme:	PRIDE
Nature of Underlying CC Impact on People and Ecosystems:	District impacted by drought but also floods and heavy rains
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Shift from rain fed farming to irrigation farming	3	Crops can be washed away by floods. Using irrigation means that farmers can survive on using irrigation system. So there is this additional benefit	H
Making use of more land for cultivation - increased land for cultivation (making use of idle land)	2	With climate change more impacts of food insecurity. So increasing land for crop production is an added benefit.	M
Improvement of access roads to the area and consturction of dam/bridge to link areas together	3	Ecomomic activities increase, improving the economic wellbeing of community, making them less vulnerable to climate change.	M
More efficient use of water sources (less water run off wasted)	3	Water will be controlled making it easier to use it.	H
Improved food security and nutriton	3	Farmers will be growing more times a year. Communities face more food insecurity from climate change therefore increased growing seasons is important.	H
Improved catchment conservation through setting aside village forest area and forests	3	Increase in trees reduces surface runoff of water. Tree planting also acts as mitigation from climate change.	H
Increased income through improved agricultural productivity and increased access to markets etc from roads	3	Enables people to withstand shocks of climate change making them more resilience	H
Adaptation Benefit Share (ABS) ignoring costs			22%

Name of Programme:	SALFP - Sustainable Agriculture Lead Farmer Project
Nature of Underlying CC Impact on People and Ecosystems:	The rains are erratic. Because of unreliable rains, crops are not harvesting enough. Therefore there is high food insecurity and food does not last the whole year. Also there are floods. Crops are washed away by the floods.
Significance of CC in Programme Objectives:	HIGH

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased capacity / knowledge of the local farmers and communities in terms of sustianable agriculture technology	2	Sustainable agriculture technologies in communities affected by climate change will help them withstand drought. E.g. soil fertility improvement technologies.	H
Improved food security at household and community level	3	Food security will help withstand shocks of climate change but not such a big change in importance, as it is always important for households to have improved food insecurity.	L
Increased income for households	3	If you are economically stable you can easily withstand the shocks of climate change	H
Reduced land degradation leading to improved soil fertility	3	Land made more productive. They are able to harvest even when affected by climate change as their land has been improved.	H
Diversification of crops to withstand drought	2	Main aspect is drought. Bring in technologies and person can easily recover from climate change shocks	H
Targeting of vulnerable groups to improve their livelihoods	2	Vulnerable groups are more vulnerable to climate change. These interventions are an added benefit for them.	M
Adaptation Benefit Share (ABS) ignoring costs			20%

NTCHEU

Name of Programme:	ADAPT PLAN
Nature of Underlying CC Impact on People and Ecosystems:	Erratic rainfall and drought.
Significance of CC in Programme Objectives:	Full

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved health from clean water	3	With drought, increased water borne diseases, so clean water is very important.	H
Increased household income from food production	3	Cash flow enables farmers to buy farm inputs and also enables them to diversify and open other businesses to help them withstands shocks from climate change	H
Increased income from access to savings and loans	2	Cash flow enables farmers to buy farm inputs and also able to diversify and open other business to help them withstand shocks from climate change	H
Increased access to water from solar boreholes and watershed manageent for farmers, hhs and fisheries.	3	Very important for reliable access to water. Directly related to shocks.	H
Increased agricultural productivity from irrigation	3	With drought it is increasingly important that household are able to access irrigation	H
Improved nutrition of household	2	Not big change with or without climate change although nutrition is important for health etc.	L
Increased preparedness from climate change shocks for local population	2	Farmers given knowledge and make decisions on information they are given on how to respond to climate change. Frequent disasters to people have knowledge of preparedness.	H
Adaptation Benefit Share (ABS) ignoring costs			30%

Name of Programme:	Irrigation Youth Empowerment Project
Nature of Underlying CC Impact on People and Ecosystems:	Greatly affected by climate change. They experience dry spells.
Significance of CC in Programme Objectives:	MID

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved nutriton of households (more diverse crops)	2	Not significant implication of cclimate change although a health household is less vulnerable	L
Reduced youth unemployment	3	Youth are able to support households to withstand shocks when employed	M
Increased income for all households in the area from agriculture	3	More reliable income from agriculture even during dry spells	H
Increased food security for all households in the area due to irrigation	3	Over-reliance on rain fed farming during dry spells will make households more vulnerable Therefore irrigation increasingly important.	H
Reliable access to electricity (not using trees)	2	More important to have alternative energy sources with climate change	H
Reduced cost of energy	2	Will give poorer more vulnerable households affected by climate change access to energy	M
Cleaner energy leading to less pollution	1	More important not to be using natural resources	H
Adaptation Benefit Share (ABS) ignoring costs			20%

Name of Programme:	LDF MASAF IV
Nature of Underlying CC Impact on People and Ecosystems:	Increased disasters, including floods in some parts of districts where some of roads and irrigation schemes have been damaged. Shortage of water which affects ability to carry out catchment
Significance of CC in Programme Objectives:	HIGH

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased income of households	3	The income only reduces their vulnerability temporarily. It doesn't permanently reduce their vulnerability to shocks.	2
Increased skills and knowledge of local artisans	1	Increased skills for business diversification and irrigation methods to enhance security.	3
Increased access to services	1	Greater need for services and access to markets with climate change	3
Increased agricultural productivity due to watershed management	2	With drought improved water shed management is increasingly important	3
Increased agricultural productivity due to improved irrigation technology.	2	With drought improved irrigation becomes increasingly important.	3
Improved nutritoinal status of population from fish farm and agriculture	1	Improved nutrition decreases vulnerability.	1
Increased income from fish farmining	1	Income diversification from fish farming increasingly important.	2
Adaptation Benefit Share (ABS) ignoring costs			20%

Name of Programme:	MDRRP
Nature of Underlying CC Impact on People and Ecosystems:	The area is affected by droughts almost every year. The area is in a rain shadow so it has low rainfall anyway. So the impact of climate change is even bigger.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased food security and nutrition status of households	3	A healthy household is more able to withstand the shocks of CC.	M
Increased income of households from crops and livestock	3	With climate change households increase in vulnerability so having more income enables diversification of income sources, reducing vulnerability	H
Increased access of clean portable water for households	3	Clean portable water becomes more scarce with climate change so this is becomes more important.	M
Increased production due to improved water conservation	3	Climate change directly impacts water availability to conserving water for crop production is increasingly important	H
Increased area under irrigation due to construction of shallow wells	2	With climate change, drought increases so this is a very important benefit to help farmers withstand drought	H
Increased access to markets and fields for farmers due to roads	2	With climate change, households increase in vulnerability so there is a small benefit to have greater access to markets and fields in vulnerable time, but not greatly important	L
Increased access to farm inputs for farmers including drought tolerant crops	2	Climate change will increase drought so drought tolerant crops increasingly important to withstand this impact.	H
Adaptation Benefit Share (ABS) ignoring costs			20%

Name of Programme:	MFERP
Nature of Underlying CC Impact on People and Ecosystems:	Floods are expected to increase with climate change Especially as rivers are shallow due to siltation from soil erosion. The area is event more vulnerable to flooding.
Significance of CC in Programme Objectives:	HIGH

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Flood protection infrastructure for households	1	Becoming increasingly important to protect communities from flooding.	H
Increased food productivity from management of catchments, irrigation maintenance and access to farm inputs	3	Very important as climate chage directly impacts food productivity	H
Increased access to services through improved road network	2	Maybe greater need for services (e.g. health) because of increased vulnerability but not significant change in benefit with climate change	L
Rehabilitation of buildings	2	Increasingly important as floods keep destroying the buildings	H
Increase in incomes of farmers and business people through public works	2	Money only provided every 24 days so helps withstand some of the effects from the climate shocks	M
Increased employment due increased knowledge and skills of local artisans	2	Enables people to diversify income beyond farming, which is more vulnerable to climate shocks.	H
Increased water retention in catchment.	2	Water conservation is more important	H
Adaptation Benefit Share (ABS) ignoring costs			20%

Name of Programme:	Sustainable Rural Water Supply and Sanitation Improved Livelihoods Programme
Nature of Underlying CC Impact on People and Ecosystems:	Drought in these areas and rainfall is not adequate.
Significance of CC in Programme Objectives:	MID

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased access to clean safe water for households and institutions	3	With drought there will be more demand for clean water, so it is more important	H
Increased access to improved sanitation, in terms of latrines	3	With CC and drought there will be more diseases, so sanitation is more important	H
Improved skills and knowledge on good hygiene	1	During water scarce periods people should understand how to ration the water – helps fight the increased in diseases and use the scarce water supply well.	M
Reduced catchment degradation therefore there is improved storage of water and water retention due to catchment management.	2	With climate change there will be increased water scarcity. Water management is therefore increasingly important.	H
Increased income generation from livelihood activities eg. bee keeping and stove making	2	Will be important to diversify incomes to allow people to more easily access water when it is scarce due to CC	M
Constant flow of water due to reduction of siltation in the rivers, which benefits farmers, fishing and recreation.	1	A constant flow in streams means people can resort to irrigation farming. The water supply allows access to water during more water scarce periods as a result of climate change	H
Adaptation Benefit Share (ABS) ignoring costs			22%

Name of Programme:	Shire River Basin Project
Nature of Underlying CC Impact on People and Ecosystems:	Eratic rainfall. Area depends greatly on agriculture and with eratic rainfall production of crops is heavily reduced. Won't have enough water for rain fed farming.
Significance of CC in Programme Objectives:	HIGH

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved nutrition of households	3	People with good nutrition and good food security are able to withstand the shocks	M
Increased food security of households	3	People with good nutrition and good food security are able to withstand the shocks	
Increased productivity due to afforestation and watershed management	3	Local productivity in terms of food crops will decline with climate change so the benefit of afforestation and watershed management is even more important with climate change	H
Increased access to water for farmers and households	2	Water security is increasingly important with drought from climate change. It means farmers can have irrigation farming and ponds.	H
Increased incomes of households due to increased productivity	2	Income allows them to diversify their livelihood – enables to withstand the shocks of CC. And also enables them to pay for education, health etc.	M
Protection of households from flooding	2	Becomes much more important because flooding increases with climate change	H
More reliable electricity from hyrdo in Shire river due to reduced siltation	1	Surface run off and therefore siltation may become bigger problem with climate change, making hydro power less reliable, therefore this benefit of the programme of reducing the siltation to improve electricity will become more important Also to reduce electricity from GHHs that globally contributes to CC .	M
Adaptation Benefit Share (ABS) ignoring costs			20%

ZOMBA

Name of Programme:	ADAPT Plan
Nature of Underlying CC Impact on People and Ecosystems:	Drought, particularly in one area, and recurrent dry spells in other areas. There is also flooding in one area of the district but this isn't a focus area for this project
Significance of CC in Programme Objectives:	Full

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased irrigation farming – leading to an increase in number of growing cycles at a household level.	3	Irrigation enables farmers to grow crops 3 times a year. The farmers are reliant on rain fed agrilcultre, but with irrigation they are able to grow crops twice before the next rains.	H
Increase in livelihood options through fish farming and honey production and forestry, investing in beehives.	3	Diverse livelihoods reduce vulnerability.	H
Investment in climate smart agriculture.	3	Climate smart agriculture makes people better prepared for climate change.	H
increased income and savings through business promotion.	2	Important benefit of savings because savings increases household ability to survive drought/flood.	M
Recharge of groundwater system due to forest cover.	3	Groundwater stock increasingly important with climate change variability.	H
Increase in fuel saving practices.	3	Fuel saving practices highly important to protect groundwater and increasingly degraded environment due to climate change.	H
Increased access to portable water – rehabilitating existing boreholes or drilling more boreholes.	3	Directly impacted by changes in water avalability.	H
Adaptation Benefit Share (ABS) Ignoring costs			22%

Name of Programme:	MASAF
Nature of Underlying CC Impact on People and Ecosystems:	Flooding increasing. Drying up of rivers. Changing course of rivers. Stress on livelihoods due to climate shocks.
Significance of CC in Programme Objectives:	Medium

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased income and livelihood options due to increased forest cover	2	Communities increasingly using forests as an alternative livelihood due to climate stresses. Diversified incomes become more important as climate change threatens traditional livelihoods	H
Increased household incomes and savings from wage from community works programme	2	People are able to diversify livelihoods needed from climate shocks. People can be more resilient with more money.	H
Enhanced skills in community planning at village level	2	Communities are able to come together and plan and build resilience together.	
Increased access to social services (bridges constructed and road network improved)	3	Largely similar with or without climate change but there may be some changes for example increase in health issues due to climate change and therefore needing to access healthcare facilities	L
Enhanced food security due to agricultural investment (irrigation largely)	3	More vulnerability due to shocks and unreliability of weather patterns. Therefore increased importance of agricultural investment	H
Decrease in absenteeism of students (especially girls) in schools (due to infrastructure changes - latrines)	1	Benefits of increased education to deal with shocks.	L
Adaptation Benefit Share (ABS) Ignoring costs			18%

Name of Programme:	MFERP
Nature of Underlying CC Impact on People and Ecosystems:	Big issue is flooding. Heavily silted rivers as the rivers have dried out. Rivers are also changing course and causing loss of property. Livelihoods are changing and it's causing people to resort to other livelihoods such as heavy deforestation.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Coordinated sector planning and more coordinated plans in district council and villages on climate change	3	Without the plans then nothing will work. Won't be able to address root challenges of climate change without plan	H
Increased awareness of climate change within communities (sensitisation)	2	Levels of awareness are there as communities can see climate change happening for themselves	L
Improve agricultural inputs provided for communities leading to increased agricultural production	2	Benefit of increased agricultural production is directly linked to increased shocks from climate change	H
Increase of irrigated land	2	Benefit of increased agricultural production is directly linked to increased shocks from climate change	H
Sustainable land management practices by farmers	2	The benefit is affected by climate change, but this probably wouldn't ever be very significant because it is hard to get farmers involved in sustainable land managmeent practices.	M
Improved access to markets and other social services through infrastructure rehabilitation	2	Not so much affect. Could be a small benefit, as access to market will increase household ability to overcome effects of flooding.	L
Increased forest cover	2	They have witnessed increased deforestation as people's livelihoods are changing as a result of climate change (less farming and more trees being cut down). Therefore the protection of the forest cover by the project is valuable	M
Adaptation Benefit Share (ABS) Ignoring costs			18%

Name of Programme:	PRIDE
Nature of Underlying CC Impact on People and Ecosystems:	Less rainfall and less predictable and reliable rainfall. This has resulted in changing livelihoods, such as increase in deforestation as people move away from farming and cut down trees to support their families. The environmental effects from this are exacerbating climate change.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved catchment management means less siltation and more water in rivers	3	Managing catchment areas improves amount of water in rivers, which will be used by the farmers for irrigation so significant benefit with climate change as fluctuations in rainfall increase.	H
Increased food security at household level due to irrigation and catchment management	3	With climate change there will be less reliable rainfall and increased food security so the irrigation and catchment management becomes even more important.	H
Improved biodiversity due to catchment management	1	Improved catchment management and improved biodiversity becomes more important with climate change.	M
Gender: improved participation of women in agricultural activities	1	Little increase in benefit as a result of climate change, although participation of women in activities may increase household's ability to withstand shocks	L
Improved nutrition at household level and diversification of food	2	Main benefit of improved nutrition not affected by climate change	None
Increased income levels with increased access to market (leads to increased education, health etc).	3	Increased income and income sources from increased access to market allows households to overcome effects of unreliable rainfall.	M
Adaptation Benefit Share (ABS) Ignoring costs			17%

Name of Programme:	Shire River Basin Management Programme
Nature of Underlying CC Impact on People and Ecosystems:	Largely drought is the issues in the District.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Improved soil and water management	3	Climate change will increase soil degredation and reduce water security and quality.	H
Improved food security	3	With climate change there will be more droughts and less food. People are very reliant on farming in the area and yields will be lower. People are particularly reliant on rainfed farming.	H
Improved energy security for households	2	Perhaps the number of trees will reduce. The programme encourages natural regeneration and planting of new trees. When experience droughts the survival of new trees will reduce.	L
Improved income levels of the community	2	Programme includes diversification of incomes which will be increasingly important in withstanding shock from climate changes.	M
Improved infrastructure - communication from roads and market access	1	Climate change could affect commodities available in markets. Therefore markets could be white elephants. After rains you can get cut off. With improved road netowrk there are more options for getting around.	L
Skills and knowledge in local population: business management, financial mangement, nat resource management etc.	1	Improved skills and knowledge will help the community to adapt to changing climate. More options for diversification. They can improve their livelihoods.	H
Adaptation Benefit Share (ABS) Ignoring costs			19%

Name of Programme:	MDRRP
Nature of Underlying CC Impact on People and Ecosystems:	Farmers are experiencing frequent dry spells from change in climate. So farmers have been unable to produce enough crops. Households also experience flash floods. Some crops and livestock are washed away. Some houses collapse. Seen that there is a shortage of water for domestic and agricultural use. Also because of dry spells the occurance of pests on crops are increasing.
Significance of CC in Programme Objectives:	High

Benefits	Level (A)	Implications for CC on Benefit	Level (B)
Increased water availability due to catchment conservation	3	Increased water availability due to conservation is very important with drought. It plays an even greater role for households and means they will still have access to water. The water table will be improved so most households will still have water.	H
Increased income of households due to increased more hardy crops and livestock	3	Introduced drought resistant crops which can be sold, which means increased income and means they avoid selling other assets from household which they might have to do in the event of shocks without this project benefit	H
Increase of food security of households due to increased drought resistant crops and livestock	3	Drought resistant crops enable households to withstand shocks.	H
Increased knowledge and skills of farmers on crops and livestocks	2	The farmers are given the improved technologies which if practiced well in dry spells will enable them to produce good levels of production of crops and livestock.	M
Increased mobility with new roads (access to market, hospitals and schools etc)	2	It means communities can easily move from one place to another if they are to conduct businesses and therefore make income. So there is some additional benefit in helping communities survive shocks of climate change.	L
Increased diversification of livelihoods	3	Increased diversification of livelihoods enables farmers to withstand shocks.	H
Adaptation Benefit Share (ABS) Ignoring costs			21%

Annex 4: Report on Discussions in Nkhata Bay, Ntcheu and Zomba

District CC expenditure analysis: Nkhata Bay

Nature of CC in Nkhata Bay. The consensus in Nkhata Bay was that erratic rainfall has become an increasing issue in the district and that this was expected to continue into the future. This includes issues of drought, leading to the drying up of rivers and the reduction in water levels in Lake Malawi, as well as flooding from heavy rains. Because the population of Nkhata Bay are largely reliant on three main cash crops (cassava, bananas, and rice), the increasingly unpredictable rainfall will significantly affect household food security and income in the area. The lake is also a significant source of income in the area and it has been noted that recent variations in climate have affected the fish population, again affecting household income levels.

Adaptation Benefit Share. During the field visit to Nkhata Bay, eight projects were chosen, alongside the ADAPT PLAN coordinator, as projects that contributed significantly to CC adaptation. Unfortunately, an assessment was not possible for three of these projects as the project officials were not available for a meeting. These three projects included two EU funded agriculture and nutrition support projects (Kutukula ulimi m'malawi (KULIMA) and Afikepo), as well as a WASH project supported by UNICEF. The five projects assessed are shown in the table below.

Table 25 Adaptation Benefit Share, by Project, Nkhata Bay

Project name	ABS Score
Programme for Rural Irrigation Development (PRIDE)	22%
Agriculture infrastructure and youth in agribusiness project (AIYAP)	21%
Sustainable Agriculture Lead Farmer Programme (SALFP)	20%
Fourth Social Action Fund Strengthening Safety Net Systems Project for Malawi (MASAF IV/ LDF)	16%
Implementing urgent adaptation priorities through strengthened decentralised and national development plans (ADAPT PLAN)	23%

All projects selected were given an ABS of between 16% and 23%. The ADAPT PLAN project was given the highest score of 23%; it focuses on the main issues faced in terms of CC within the agriculture, water and forestry sectors of the district. In Nkhata Bay the project also has a fisheries component, bringing in training to the community so they can understand how CC has impacted fishing and also promoting diversified income through the introduction of fish ponds. The most significant benefits given for the project were the increased income generation for households through the livelihood diversification schemes, the improved food security for households through irrigation and crop diversification, and the increased access to information for households on CC. Crop diversification, access to irrigation, diverse sources of income, and the ability to prepare for shocks due to increased knowledge, were all also seen as essential benefits in reducing the losses and damages from CC. They were all given a score of 3 when considering the implications for CC on the benefit. Those less important benefits of the project, such as increased water retention due to forest increase and watershed management, were also seen as highly valuable benefits when faced with CC, and so all the benefits of the project were given high scores when considering CC. When discussing potential additional costs for the project, however, it was suggested that the project would need to improve the irrigation system it uses, as the current system uses a high amount of water, which may not be sustainable.

The Programme for Rural Irrigation Development (PRIDE) was also given a high score of 22%. In this case the benefits of the project were all seen as highly important and all but one were given a score of 3. These benefits themed around the increase in agricultural productivity, the increased incomes

and the improved food and nutrition security of households due to the supply of irrigation, as well as the creation of roads giving farmers access to markets. Five out of seven of the benefits were then scored as a 3 when considering the benefits of the project with CC. The remaining two benefits scored a 2. It was therefore seen that the project contributes significantly to climate adaptation by providing irrigation and watershed management, which makes more efficient use of increasingly scarce water resources and enables farmers to increase crop production, and therefore improve their livelihoods, which would otherwise be threatened by rainfall fluctuations and flash floods, which wash their crops away.

The diversification of income sources and increased income for households was a common benefit throughout all projects in Nkhata Bay, and this was also seen as a significantly increased benefit when considering people faced by CC. The common argument for this was that projects that increase household income enable households to be less vulnerable to poverty induced by CC and also to use their income to cushion themselves against climate shocks. Diverse sources of income also stop households being so reliant on one natural resource for their income, allowing them to build their resilience in the face of drought.

District CC expenditure analysis: Ntcheu

Nature of CC in Ntcheu. Much of Ntcheu has always been affected by low rainfall, because the area is in a rain shadow, but rainfall was becoming more erratic, which posed problems for livelihoods that were largely dependent on rain-fed agriculture. The district had also seen an increase in diseases and pests as a result of climatic changes, which had decreased yields and harvests. In some parts of the district there were issues of flooding, especially as rivers were reducing in depth due to siltation from soil erosion. It was understood that the flooding was expected to increase with CC.

Adaptation Benefit Share. During the field visit to Ntcheu, in discussion with the District Planning Director, the District Environmental Officer, and the ADAPT PLAN Coordinator, seven projects were chosen as projects that make a significant contribution to CC adaptation. These included project focusing on drought and flood relief, water supply and sanitation, watershed management, and broad livelihoods and safety net projects. These projects are all detailed in the table below.

Table 26 Adaptation Benefit Share, by Project, Ntcheu

Project name	ABS Score
Shire River Basin Management Program Project	20%
Malawi Floods Emergency Recovery Project (MFERP)	20%
Fourth Social Action Fund Strengthening Safety Net Systems Project for Malawi (MASAF IV/ LDF)	20%
Implementing urgent adaptation priorities through strengthened decentralised and national development plans (ADAPT PLAN)	22%
Irrigation youth empowerment project	20%
Malawi Drought Recovery and Resilience Project (MDRRP)	20%
The Sustainable rural water and sanitation infrastructure project for improved health and livelihoods.	22%

All projects selected were given an ABS of between 20% and 22%. The two projects with the highest ABS of 22% were ADAPT PLAN and The Sustainable Rural Water and Sanitation Infrastructure Project for Improved Health and Livelihoods. The latter project listed key benefits as being 'increased access to clean safe water for households and institutions' and 'increased access to improved sanitation, in terms of latrines'. The remaining benefits included improved catchment management and water storage, livelihood diversification and increased income, improved skills and knowledge on good

hygiene, and increased water flow into the rivers due to decreased erosion and siltation of the rivers. During the discussion, the participants from the projects decided that all the benefits had an increased benefit under CC, and all the benefits were scored with either a 2 or a 3 when considering CC. It was perceived that with CC there would be increase water scarcity, affecting water availability, hygiene and sanitation. Therefore, the projects' benefits of ensuring a sustainable and clean water supply, as well as improved knowledge of how to manage the water, would be even more important in supporting the population affected by CC. The livelihood component of the project was also seen to be important in allowing households to diversify their incomes, making them more resilient to climate shocks. When discussing potential additional costs for the project, however, there were various areas that would need to be considered in the future, including implementing higher yield boreholes that meet the demand of the local population.

In Ntcheu, the key benefits seen by ADAPT PLAN were improved health from clean water, increased household income from food production, increased access to water through solar boreholes and watershed management for farmers, fisheries and households, and increased agricultural productivity from irrigation. All these were seen as having increased benefits under CC and were there also given a 3. With the increase in waterborne diseases and drought, access to clean water for multiple uses, including irrigation, was seen as a highly important benefit for agricultural productivity, as well as the health of the population. Income was also seen as highly important in helping farmers to buy more farm inputs and diversify their income streams in order to build resilience against drought. There was only one benefit that did not receive a score of 3 when considering CC and this was improved nutrition of the households. It was perceived that although this was important, it was always important, with or without CC, and it therefore did not make a significant contribution to CC adaptation.

District CC expenditure analysis: Zomba

Perceived Nature of CC in Zomba. Zomba district has suffered from unreliable rainfall in recent years, with recurrent dry spells. This is expected to continue, affecting crop and livestock farming in the area, as well as leading to a shortage of water for domestic use. Pests are also seen to be increasing, affecting crop yields. Flooding is also a particular issue in some areas of the district, with heavily silted rivers exacerbating the problem.

Adaptation Benefit Share. In consultation with the District Planning Director and the ADAPT PLAN Coordinator, six projects were chosen as projects that make a significant contribution to CC adaptation. These included projects focusing on drought and flood relief, irrigation, watershed management, and broad livelihoods and safety net projects. These projects are all detailed in Table 27 below.

All projects selected were given an ABS of between 17 and 22%. The two projects with the highest ABS were ADAPT PLAN, with a score of 22%, and the Malawi Drought Recovery and Resilience Project (MDRRP), with a score of 21%. The latter project had key benefits of 'increased income of households due to increased more hardy crops and livestock', 'increased water availability due to catchment conservation', 'increased food security of households due to increased drought resistant crops and livestock', and 'increased diversification of livelihoods'. These were all also perceived to bring significant increased benefits, when considering CC, in assisting the people to adapt to the threats of drought. Therefore, they were all also given a score of 3 when discussing the implications of CC on the benefit. The only benefit that was given a low score when considering the implications of CC was 'increased mobility with new roads (access to market, hospitals and schools etc)'. The district officials assessing this project saw that there was a small additional benefit in increasing roads, as they allow communities to easily move from one place to another, allowing them to carry

out business and earn an income. Therefore, there was some additional benefit in helping communities survive shocks of CC, but it was considered small compared to the other benefits.

Table 27 Adaptation Benefit Share, by Project, Zomba

Project name	ABS Score
Programme for Rural Irrigation Development (PRIDE)	17%
Shire River Basin Management Program Project	19%
Malawi Floods Emergency Recovery Project (MFERP)	18%
Fourth Social Action Fund Strengthening Safety Net Systems Project for Malawi (MASAF IV/ LDF)	18%
Implementing urgent adaptation priorities through strengthened decentralised and national development plans (ADAPT PLAN)	22%
Malawi Drought Recovery and Resilience Project (MDRRP)	21%

Under ADAPT PLAN, six out of seven benefits were seen as highly important and given a score of 3. These included benefits of increased agricultural productivity due to irrigation, increased livelihood diversification, recharging of the groundwater system due to watershed management, and increased access to clean potable water. These were also all deemed highly important benefits when considering CC and the necessary adaptation need. It was however thought that there would be increased costs as a result of CC as deeper boreholes would need to be drilled to access the clean water.

Annex 5: Qualitative CC Impact Assessment

The Training of Trainer (ToT) event focused on the use of the qualitative CC Impact Appraisal (CCIA) method, as illustrated in the template below.

Name of Programme	Community Forestry Programme	
Underlying CC Impact on People/Ecosystems	Incomes from non-forest more unreliable. Increases forest productivity. Increases ecosystem fragility. Mitigation value.	
Significance of CC in Objectives	High	High/Mid/Low

	Benefits	**A: Level no CC**	**Implications for CC for Benefit**	**FHML**	**B: Level with CC**	**ABS (B-A)/B**
1	Higher incomes from selective extraction of mature timber	3	Slightly higher with improved biomas productivity	H	4.5	33%
2	More reliable incomes	3	Higher because non-forest incomes become more variable	M	3.9	23%
3	Protected forest biodiversity	2	Higher if forest productivity increases ecosystem fragility	M	2.6	23%
4	Improved carbon sequestration	0	Only valuable if CC taken into account, but relatively small value	F	1	100%
5	Reduced downstream flooding	3	Higher because more intense rain	H	4.5	33%
6	Reduced downstream siltation	1	Higher because more intense rain	H	1.5	33%
7	Reduced maintenance from climate proofed access tracks	1	Higher with more intense rain	H	1.5	33%
Total		13			19.5	**33%**

Notes. ABS (Adaptation Benefit Share) is adaptation benefits (B-A) as a % of total benefits (B). 'A' is the development benefits and is normally be between 0 and 3. The ratio of 'B' to 'A', depends on the level of the implications of CC for benefits (ie Full/High/Mid/Low, or FHML), as follows: B/A is 1.5 for H, 1.3 for M and 1.1 for L. For 'F', there will be a 0 for A and the value for B would normally be between 0 and 3, depending on the relative importance of the adaptation benefit.

Key tips in using the template are as follows.

BENEFITS COLUMN

- Benefits should describe impact for people/ecosystems
- 'Means to an end' (eg institutions, capacity etc) should be avoided and replaced by the benefits of these outputs for people/ecosystems
- Limit the number of benefits to no more than 6 (normally)
- Avoid repeating the same benefit with different words, unless you want to do that deliberately to add extra emphasis (ie give a score of more than 3)
- Avoid scoring everything '3'

IMPLICATIONS OF CC COLUMN

- This column is ONLY for the implications for the benefit – not the general impact on people or ecosystems (which goes in the box above the matrix)
- Avoid scoring everything '3'

Annex 6: Checklist of Key Institutional Issues

Integrating Climate Change into District Planning and Budgeting in Malawi

Checklist of Issues on Institutional Effectiveness

This checklist is intended to help discussions around the institutional practices for integrating CC into planning and budgeting at the district level in Malawi, as part of the fieldwork for the Malawi CPEIR work being done in Zomba, Ntcheu and Nkhata Bay. Issues in red are the most important to cover.

Awareness

- To what extent are government officials in the district aware of the likely impact of CC on their activities?
- To what extent are the beneficiaries of district projects aware of CC and the impact it may have on their lives?
- To what extent are local politicians aware of CC, including the District Committee, and is there awareness driven by personal interest/leadership or by response to demands for the population?
- Do district officials feel that they have enough evidence about what CC will involve to be able to respond effectively?

Policy

- Are there any important policy statements that are used to justify higher priority for CC projects?

Designing/Revising Projects

- In designing new projects, or revising existing projects, how strongly does CC feature (eg compared with other issues like financial sustainability, ability to implement, issues of inclusiveness and social equality …)
- Where CC does feature in the design of projects, does the main input come from: a) the district; b) central government ministries; c) development partners; d) NGOs …?
- Where CC is taken into account, does it result in: a) changes to the way activities are done; b) extra costs for 'proofing'; c) higher allocations to adaptation activities …

Managing Projects

- Does CC feature in the management processes of projects (eg do project monitor the latest evidence on changing rainfall/flood patterns as part of their management information)?
- Do project reports refer to CC in any way (eg assessing if recent weather patterns reflect expected CC)?

Future Practices

- What initiatives are needed at a strategy/policy level to promote adaptation in the District?
- Would the District government be able to tag/score projects according to the contribution to adaptation (or mitigation, maybe) if there were clear and simple guidelines?
- Do officials think that using a system of scoring would help them raise funds for projects that made the best response to CC?
- What key elements of capacity building would be required for changes to strategies, policies, projects, budget scoring …?

Annex 7: Default ABS scores and project scores

The figure below shows the actual ABS scores assigned to each CC project in the AFS Annex 6 lists and compares it with the default ABS for the sub-programme that the project is judged most likely to be assigned to. There are 108 CC projects, of which 23 have project ABSs that are judged lower than the default and 10 are judged higher. The remaining 75 have the default ABS for their assigned sub-programme.