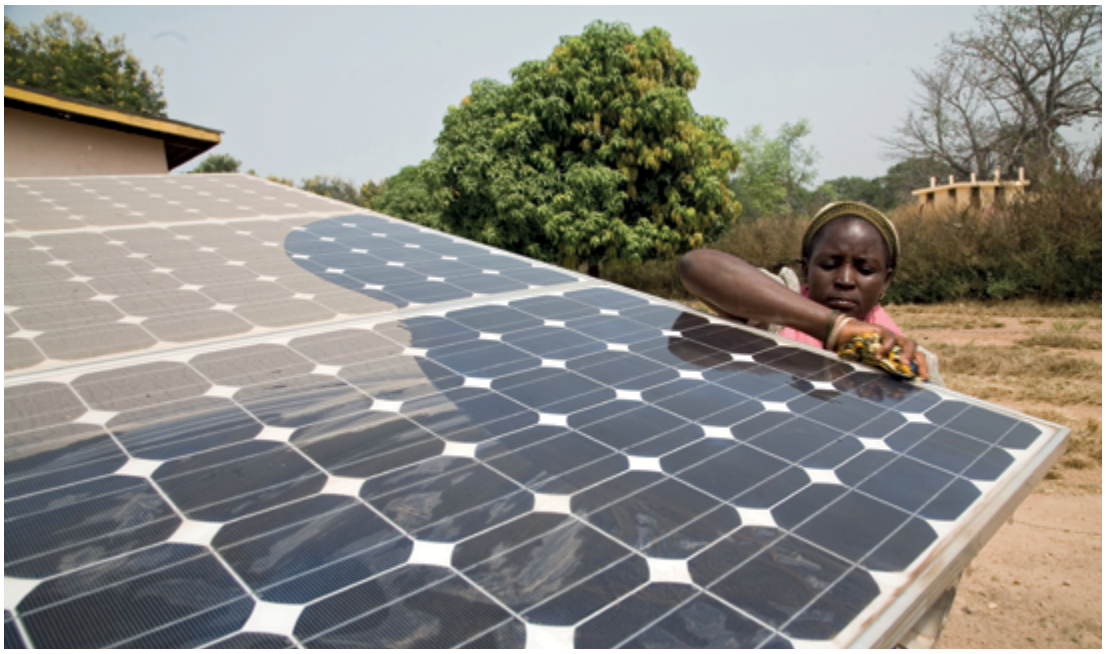
WORKING PAPER



Budgeting for NDC action: initial lessons from four climate-vulnerable countries

By Neil Bird, Overseas Development Institute

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About this Working Paper

Accelerating the shift to climate compatible development is CDKN's business and improving the lives of the most climate-affected people is our mission. A multi-year, £130 million programme funded by the British and Dutch governments and many others, CDKN works to support climate compatible development in Asia, Africa, Latin America and the Caribbean. Our programme provides technical assistance to governments, as well as research-into-action projects that fill gaps in our understanding of climate change impacts and solutions. A further, crucial part of CDKN's programme is knowledge management and policy engagement, an effort to which this Working Paper contributes.

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What is climate compatible development?

Climate compatible development is defined as "development that minimises the harm caused by climate impacts while maximising the many human development opportunities presented by a low-emissions, more resilient, future".[1] In other words, development, climate adaptation and climate mitigation should go hand in hand, and one should not undermine the others.

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Executive summary

This Working Paper addresses the following question: are climate change-related expenditures starting to appear in national budgets to secure the early implementation of countries' Nationally Determined Contributions (NDCs)? It examines the evidence of resourcing NDC policies and actions in four sub-Saharan African countries – Ethiopia, Ghana, Kenya and Uganda – that are known to be vulnerable to the impacts of climate change. These are all non-Annex I Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

The paper first examines the level of spending that passes through the countries' national budgets for those ministries that play a leadership role in the sectors considered strategic to implementing the NDCs. Significant discrepancies exist between these ministry budget estimates and actual spending in the countries reviewed, raising questions over the potential for speedy implementation of new and additional climate change-related programmes.

How the national budget is constructed has a major bearing on the extent to which NDC-related actions can be identified as part of government spending. Budgetary reform in all four countries, including the recent introduction of programme-based budgeting, has raised the possibility of identifying such expenditures more readily than was previously possible.

A review of national budget spending in Ghana, Kenya and Uganda suggests limited resources are being allocated to NDC-related actions. In addition, many relevant national projects are heavily dependent on donor support. The implication of this is that the early implementation of NDCs in these climate-vulnerable countries will rely on significant international financial support, something already highlighted in the framing of the conditional elements of these countries' NDCs.

Overall, the present and projected levels of public expenditure suggest that achieving the levels of spending implied in the first NDCs will be very challenging.

Policy recommendations

- Actions by a small number of ministries can advance NDC implementation in the four countries reviewed. Where this is the case, efforts to strengthen these ministries' budget planning and reporting systems should be considered an integral part of early NDC implementation.

- For monitoring and reporting purposes, greater prominence should be given to end-of-year actual expenditure reports than start-of-year budget estimates. There is a need to better understand the national budget system through which public funds flow in support of NDC implementation, particularly with regard to the widespread discrepancy between budget projections and actual spending.

- Other non-Annex I countries should consider developing national climate change budgets, following the experience of the governments of Ghana and Kenya, to help identify where relevant NDC spending is taking place and where strategic gaps in spending remain.

- The national budget could be used as a tool to assist international reporting to the UNFCCC. The scope for national budgetary systems to provide information on international support received should be considered as part of the ongoing discussions over the enhanced transparency framework of the Paris Agreement.

Introduction

The implementation of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) rests with country actions that are listed in Nationally Determined Contributions (NDCs). This Working Paper examines the evidence of resourcing these NDC actions in four countries that are regarded as being particularly vulnerable to the impacts of climate change: Ethiopia, Ghana, Kenya and Uganda. It aims to provide a first assessment of current and planned public spending on NDC implementation, as well as examining the extent to which the national budget system records such expenditures.

The analysis builds on a body of work carried out previously in the three countries where the author has analysed public spending on climate change,[2] and draws on recent relevant literature in the fourth country, Kenya.[3] While four is a limited number of countries from which to draw any general conclusions, the issues these countries face are likely to have resonance for other non-Annex I Parties to the UNFCCC.[4]

Recognising the national budget as the finance system through which most public actions are funded, this paper addresses the question of whether climate change-related expenditures (both domestically and externally funded) are starting to appear in national budgets, so that the early implementation of countries' NDCs can be secured. Other funding channels exist for public finance, yet it is the national budget, with its longstanding systems and procedures, that can be expected to align most closely with national policy-making and the priority-setting of public expenditure. Hence, the inclusion of NDC-related actions in the national budget can provide strong evidence of the importance being attached to achieving these actions.

This paper applies two complementary analyses of public spending. The first focuses on spending by the government ministries that are expected to play a leading role in NDC implementation, to explore whether these ministries have demonstrated capacity to spend additional funding on climate change actions. The second reviews line-item spending within these ministries on programmes and projects, to identify current and planned expenditure that can be associated with NDC policies and actions.

International monitoring of NDC implementation is set to begin with reporting to the UNFCCC after 2020. The national budget provides an established mechanism for financial reporting that could be considered as part of such efforts, therefore limiting the demands placed on countries to create additional systems. Much depends on whether national budget systems can provide the information required for international reporting on NDC implementation. This is not yet known: the requirements of such reporting are presently being negotiated as part of the enhanced transparency framework of the Paris Agreement. However, an appreciation of what information national budget systems can provide may assist this discussion.

Structure of this Working Paper

This Working Paper first looks at the financial resources required for NDC implementation as identified by each of the four countries, before examining budget allocations to those parts of government that will play a strategic role in early NDC implementation. The analysis then focuses on whether funding of the actions listed in the first NDCs can be identified in the national budgets of each country. It concludes with a discussion of the implications of the analysis for NDC implementation and reporting. This paper has been written to inform national policy-makers and their development partners, as national and international monitoring and reporting systems are beginning to be established.

Financial resources required for NDC implementation

All four countries belong to the group of non-Annex I Parties to the UNFCCC, many of which made commitments in their first NDCs[5] that were contingent on external support, consistent with the principle of common but differentiated responsibilities and respective capacities. The position taken with regard to the balance between domestic and international resources required for the implementation of the NDCs differs among the four countries (Table 1), with the share of international support required yet to be determined in Ethiopia and Kenya. While there is an expectation of significant international financial support, all four countries have adopted a common position that national climate change actions will be funded by the government to limit the quantity of national carbon emissions and to carry out adaptation actions within existing and planned policies, plans and projects.

Table 1. Country statements on the financial resources required for NDC implementation, and the level of international support required

Country	Statements made within NDC
Ethiopia	"The Government of Ethiopia already spends a substantial portion of its annual budget on infrastructure and the provision of social services, which contribute to addressing the negative impacts of climate change … The full and effective implementation of the Green Economy Strategy requires an estimated expenditure of more than USD 150 billion by 2030 … The full implementation of Ethiopia's INDC [Intended Nationally Determined Contribution] is contingent upon an ambitious multilateral agreement being reached among Parties that enables Ethiopia to get international support that stimulates investments."
Ghana	"31 programmes of action will drive the strategic focus of a 10-year post-2020 enhanced climate action plan … In the 10-year period, Ghana needs USD 22.6 billion in investments from domestic and international public and private sources to finance these actions. USD 6.3 billion [28%] is expected to be mobilized from domestic sources whereas USD 16.3 billion [72%] will come from international support."
Kenya	"Kenya's contribution will be implemented with both domestic and international support. It is estimated that over USD 40 billion is required for mitigation and adaptation actions across sectors up to 2030 … Further analysis will be necessary to refine the required investment costs and determine the domestic support."
Uganda	"The National Climate Change Policy and Costed Implementation Strategy estimated that Uganda will require USD 2.9 billion over the next 15 years to address the impacts of climate change … the full implementation of the priority adaptation and mitigation actions is conditional on the support of international stakeholders … national sources are assumed to cover approximately 30% of incremental costs of the activities in the next 15 years, with 70% assumed to originate from international sources."

Source: NDCs submitted to the UNFCCC

Institutional spending

The respective governments have made nationally resourced, or 'unconditional', NDC commitments for a number of sectors in each country, where a mitigation potential or adaptation response has been identified. These commitments, for both mitigation and adaptation actions, focus on the natural resources sectors of agriculture, forestry, wetlands and water (Tables 2 and 3). These sectors reflect the continuing reliance on natural resources in the rural economy of these four countries. Urban climate change strategies appear to be at an earlier stage of development, as indicated by the lower prominence of such actions in these first NDCs.

Table 2. Country NDC adaptation commitments (unconditional) by sector

	Priority adaptation sectors						
Country	Agriculture	Forestry	Water	Energy	Infrastructure	Health	Social development
Ethiopia	🌍	🌍	🌍	🌍	🌍		
Ghana	🌍	🌍	🌍			🌍	🌍
Kenya	🌍		🌍	🌍	🌍	🌍	🌍
Uganda	🌍	🌍	🌍	🌍	🌍	🌍	🌍

🌍 = sector specified in NDC

Table 3. Country NDC mitigation commitments (unconditional) by sector

	Priority adaptation sectors					
Country	Agriculture	Forestry	Wetlands	Energy	Infrastructure/ transport/ industry	Waste management
Ethiopia	✓	✓		✓	✓	✓
Ghana		✓		✓		
Kenya	✓	✓		✓	✓	✓
Uganda		✓	✓	✓		

✓ = sector specified in NDC

For each of these priority sectors, government action is led by a ministry, through which most public funding is channelled (Table 4). These are the ministries that are likely to play a leading role in implementing the NDCs. An analysis of budget expenditure and projected spending by these ministries can therefore provide an insight into the likely institutional preparedness for the expected increase in spending on climate change actions as specified in each country's NDC. Ministries being on rising budgets (and actual expenditures) suggests an ability to spend and the potential to add new programmes of work, including those indicated in the NDC.

Table 4. Lead sector ministries for NDC unconditional actions in Ethiopia, Ghana, Kenya and Uganda

	Sector							
Country	Agriculture	Forestry	Water	Energy	Infrastructure/ industry	Health	Social development	Waste management
Ethiopia	Ministry of Agriculture and Natural Resources	Ministry of Environment, Forest and Climate Change	Ministry of Water, Irrigation and Electricity	Ministry of Water, Irrigation and Electricity	Ministry of Urban Development and Housing; Ministry of Industry; Ministry of Transport			Ministry of Water, Irrigation and Electricity
Ghana	Ministry of Food and Agriculture	Ministry of Lands and Natural Resources	Ministry of Sanitation and Water Resources	Ministry of Energy		Ministry of Health	Ministry of Gender, Children and Social Protection	
Kenya	State Department for Agriculture	State Department for Natural Resources	State Department for Water Services	State Department for Energy	State Department for Infrastructure	Ministry of Health		State Department for Housing and Urban Development
Uganda	Ministry of Agriculture, Animal Industry and Fisheries	Ministry of Water and Environment	Ministry of Water and Environment	Ministry of Energy and Mineral Development	Ministry of Lands, Housing and Urban Development	Ministry of Health	Ministry of Gender, Labour and Social Development	

Ethiopia

Four of the six sector ministries (see Table 4) are on rising budgets through to 2020/21, suggesting increasing resources that might include support to climate change-related programmes (Table 5). However, while this indicates an intention to spend, Eshetu et al. (2014) found that the approved budget was a poor predictor of actual expenditures on climate change actions during 2009-2012, with actual expenditures in many climate change-related budget lines being significantly less than the budgeted amount.[6]

Table 5. Ethiopia: projected estimates of expenditure by Budget Vote, financial years 2017/18 to 2020/21

Ministry	Budget Vote Number	2017/18	2018/19	2019/20	2020/21	2020/21	% increase, 2017/18-2020/21
		Ethiopian Birr (Br), millions					
Agriculture and Natural Resources	211	22,954	23,588	24,596	25,535	26,708	16
Environment, Forest and Climate Change	219	629	677	731	789	853	36
Water, Irrigation and Electricity	221	12,356	14,076	15,411	17,260	19,124	55
Urban Development and Housing	271	60,773	64,996	67,441	71,188	75,308	33

Source: Ministry of Finance and Economic Cooperation, Addis Ababa, 2017
Note: No attempt has been made to convert national currency into an international standard (in all tables) as the focus is on the projected trend in spending rather than making any between-country comparisons.

Ghana

Five ministries are projecting significant increases in their budget allocations (Table 6), although (as was the case in Ethiopia) in recent years it appears there has been a very considerable underspend on some ministries' budget estimates (Table 7). This suggests there may be constraints within these ministries to support new and additional climate change-related programmes.

Table 6. Ghana: projected estimates of expenditure by Budget Vote, 2017 to 2019

Ministry	Budget Vote	2017	2018	2019	% increase, 2017-2019
		Ghanaian Cedi (GH¢), millions			
Ministry of Food and Agriculture	018	760	821	890	17
Ministry of Lands and Natural Resources	020	348	409	452	30
Ministry of Energy	024	890	1,070	1,106	24
Ministry of Sanitation and Water Resources	026	256	307	315	23
Ministry of Health	039	4,226	4,793	5,376	27
Ministry of Gender, Children and Social Protection	040	255	251	253	0

Source: The Budget Statement and Economic Policy of the Government of Ghana for the 2017 Financial Year (Appendices 4B, C and D)

Table 7. Ghana ministries' financial performance, 2015 (excluding external financing)

Ministry	Revised budget	Actuals	Actuals % of budget
	GH¢, millions		
Ministry of Food and Agriculture	284.5	97.6	34
Ministry of Lands and Natural Resources	282.6	134.8	48
Ministry of Energy	263.3	256.6	97
Ministry of Sanitation and Water Resources	159.9	114.3	71
Ministry of Health	2,331.8	2,220.4	95
Ministry of Gender, Children and Social Protection	23.7	20.3	86

Source: End-year report on the budget statement and economic policy of the Government of Republic of Ghana for the 2015 Financial Year (Table 8)

Kenya

Eight state departments and one ministry will play a significant part in NDC implementation (including the State Department for Infrastructure and the State Department for Transport, in addition to those listed in Table 4).

Planned increases in budgets through to 2020 vary (Table 8). However, recent experience shows variable budget execution rates, with expenditures not being realised as planned. The reasons for this require further study; budget documents cite the late transfer of funds from both the exchequer and development partners as part of the explanation. This suggests a challenging environment for the delivery of new and additional projects associated with NDC commitments.

The State Department for Energy and the State Department for Water Services stand out in terms of projected budget increases. The former plans significant investments in clean energy production (from geothermal sources) while the latter includes spending on a water security and climate resilience project (although the increase in spending is largely directed at improving sewerage infrastructure).

Table 8. Kenya: projected estimates of expenditure by Budget Vote, financial years 2017/18 to 2019/20

Ministry / State Department	Budget Vote	2017/18	2018/19	2019/20	% increase, 2017/18-2019/20
		Kenyan Shillings (KSh), millions			
Ministry of Health	1081	61,640	70,066	70,888	15
Infrastructure	1091	187,586	208,722	211,041	13
Transport	1092	102,820	90,660	92,567	0
Housing and Urban Development	1094	15,998	10,355	10,398	0
Water Services	1103	33,794	35,729	41,414	23
Natural Resources	1106	17,390	17,585	17,791	2
Energy	1152	77,219	117,572	117,375	52
Agriculture	1161	17,490	19,773	19,781	13
Social Protection	1185	24,247	25,937	26,577	10

Source: Republic of Kenya (2017)[7]

Uganda

Three ministries are on rising budgets (at least in nominal terms) through to 2020/21 (Table 9), indicating an increase in resources that could include support to climate change-related programmes. The absence of external financing in the later year projections explains the reduction in the budget levels for the Ministry of Agriculture, Animal Industry and Fisheries and the Ministry of Lands, Housing and Urban Development (although in both cases the projected domestic development spend continues to increase).

The highest level of projected expenditure is for the Ministry of Energy and Mineral Development, and reflects the considerable public investments now being made in the development of large hydro-electricity schemes.

The credibility of the budget depends in part on the process for releasing approved budget funds. This appears to be a major challenge based on the most recent published figures for 2015 (Table 10). In that year, the predictability of the donor component of the development budget was very poor, except for the health sector. Going forward, this raises questions over the reliability of the conditional component of Uganda's NDC that depends on international support. (Table 1 highlights that the funding of the conditional component of Uganda's NDC has been estimated at 70% of total NDC costs.)

Table 9. Uganda: ministry total budget projections (including external financing), financial years 2017/18 to 2020/21

Ministry	Budget Vote	2017/18	2018/19	2019/20	2020/21	% increase, 2017/18-2020/21
		Ugandan Shillings (UGX), billions				
Agriculture, Animal Industry and Fisheries	010	251.05	227.58	231.12	140.53	0
Lands, Housing and Urban Development	012	109.77	159.74	57.57	67.12	0
Health	014	165.51	163.47	175.13	201.80	22
Energy and Mineral Development	017	2,451.31	1,922.24	1,659.44	1,863.20	0
Gender, Labour and Social Development	018	178.33	203.63	241.39	287.76	61
Water and Environment	019	333.45	326.17	329.30	365.52	10

Source: Republic of Uganda (2016) (Table 3)[8]

Table 10. Uganda: annual financial performance for 2015/16 (including external financing)

Ministry	Total approved budget	Total budget spent	% Total budget spent	Donor development budget	Donor development spent	% donor spent
	UGX, billions			UGX, billions		
Agriculture, Animal Industry and Fisheries	510.49	440.01	86	91.72	43.50	48
Lands, Housing and Urban Development	164.87	64.53	38	93.47	0	0
Health	1,283.11	1,250.03	97	451.94	422.91	94
Energy and Mineral Development	2,858.44	484.29	17	2,461.73	37.35	2
Social Development	93.37	76.60	82	0	0	0
Water and Environment	576.82	422.05	73	233.28	105.01	45

Source: Annual budget performance report FY2015/16. Ministry of Finance, Planning and Economic Development. September 2016 (Table S1 for various sectors)

Summary of ministry spending plans

For all four countries, there are medium-term plans in place that indicate a nominal increase in budgeted expenditures for the key ministries involved in implementing NDC actions. However, these forecasts are often revised, and recent evidence suggests that there is significant uncertainty associated with the release of approved budget funds. This situation undermines the orderly execution of government programmes and projects (applying to climate change activities as much as any other policy area). Further analysis is required to determine whether this is related to the nature of the climate change public investments being made (as the data from Ethiopia suggests) or whether it reflects a broader public finance management challenge.

National budget reforms

The opportunity to go beyond an institutional analysis to examine the extent of public spending on specific climate change actions, including NDC actions, depends on how the national budget is constructed and reported. No international standard on how climate change-related expenditure is reported in national budgets exists, constraining analysis and inter-country comparison.

The Classification of the Functions of Government does not include climate change-related objectives within its classification of public expenditures, other than a single reference to measures that "control or prevent the emissions of greenhouse gases" under the pollution abatement grouping of the environmental protection objective.[9] This is because the Classification of the Functions of Government is a hierarchical, mutually exclusive categorisation of government spending; it does not allow for spending to be allocated to two or three different purposes. Public investments in energy, for example, are classified as energy spending, yet how such spending is made will have very different impacts with respect to climate change (e.g. investments in fossil fuels as opposed to clean energy sources).

Work continues to develop a methodology to capture expenditure statistics for climate change adaptation measures in relation to government budgets.[10] However, in the absence of such an international standard, efforts to identify expenditures relevant to NDC actions must rely on a manual review of the objectives of budget spending.

Strengthening the focus on the objectives of spending has been part of public expenditure reforms for over 20 years. Major international efforts in the 1990s supported the introduction of multi-year budget planning to complement the annual budget. In particular, the development of Medium-Term Expenditure Frameworks was promoted by the World Bank and other development partners. This reform was driven by an ambition to control aggregate spending and to improve strategic resource allocation by strengthening the link between policy, planning and the national budget.

More recently, international reform initiatives that have aimed to help improve planning and reporting on the objectives of public expenditure include the introduction of programme-based budgeting (Table 11). This has created a new categorisation for the national budget, based on a set of spending programmes that have clear policy objectives. In some countries, the budget is presented according to this programme structure, with controls remaining on economic items (salaries, goods and services, etc.). In other countries, budget controls follow the programme structure, giving ministries greater flexibility to choose the mix of inputs needed to achieve the outcomes they specify.

Table 11. Timing of Medium-Term Expenditure Framework and programme-based budgeting reforms in Ethiopia, Ghana, Kenya and Uganda

Country	Introduction of Medium-Term Expenditure Framework	Introduction of programme-based budgeting reforms
Ethiopia	2011	2012
Ghana	1996	2014
Kenya	1998	2013
Uganda	1994	2017

These budgetary reforms raise the possibility of identifying climate change policy objectives (and NDC actions) in national budgets. However, there are two important challenges to be faced. First, linking expenditure to objectives has proved difficult, even for developed countries,[11] with some types of activities being more demanding to measure and link to the inputs that a ministry receives. It is clearly much easier to hold ministries of agriculture to account for improvements in agricultural yields than for agricultural systems to be "better adapted to climate change". Second, the structure of programmes remains hierarchical, mutually exclusive and linked broadly to single ministries, to ensure that accountability for results is not blurred. As noted, this second feature is particularly problematic for cross-cutting expenditures such as climate change, because interventions may cut across multiple sectors and implementing ministries.

Evidence of public spending on NDC-related actions

A review of budget documentation to identify references to climate change, and specifically NDC policies and actions, has been made for Ghana, Kenya and Uganda based on published budget data. In each case, evidence of NDC-listed actions was sought within the text of the policy objectives of the annual budget, building on the detailed budget analysis studies referred to in the introduction to this paper. This analysis could not be completed for Ethiopia, as the federal budget details of approved estimates of expenditure are not published.

Ghana

Ghana's unconditional NDC commitments list nine specific adaptation and mitigation measures (Table 12). Evidence of planned spending relating to these measures was looked for in the 2017 budget estimates published by the Ministry of Finance. Both the programme-based budget estimates for 2017 and the 2017 budget volume for the six ministries were reviewed.[12] No references were found that could link planned expenditures to these NDC actions.

Table 12. Ghana's domestically financed NDC commitments (unconditional)

Adaptation actions	
Agriculture	• Modified community-based conservation agriculture adopted in 43 administrative districts • Scale up penetration of climate-smart technologies to increase livestock and fisheries productivity by 10%
Forestry	• Governance reform for utilisation of forest resources for sustainable energy use and biodiversity business • Manage 413,000 hectares of fragile, ecologically sensitive and culturally significant sites in 22 administrative districts in the forest and savannah areas
Health	• Adopt climate change-informed health information systems including traditional knowledge on health risk management
Social protection	• Implement community-led adaptation and livelihood diversification for vulnerable groups
Water	• Strengthen equitable distribution and access to water for 20% of the population living in communities identified as being at risk of climate change
Mitigation actions	
Energy	• Scale up 120 million standard cubic feet of natural gas replacement of light crude oil for electricity generation in thermal plants
Forestry	• Continue 10,000 ha annual reforestation/afforestation of degraded lands

In 2016, the United Nations Development Programme (UNDP) provided support to the Government of Ghana to understand how to develop a 'climate change budget' (Box 1). The ensuing climate change budget, applicable for the planning period 2015-2017, is made up of 30 policy objective budget codes. A review of these budget codes found spending in three ministries' 2017 estimates: the Ministry of Food and Agriculture, the Ministry of Lands and Natural Resources and the Ministry of Sanitation and Water Resources. So, while a direct link to spending on NDC actions cannot be made, there is evidence of climate change-relevant spending taking place.

The highest projected spending was found in the Ministry of Lands and Natural Resources. For the three Budget Codes with the largest 2017 budget allocation, achieving the relevant policy objective is highly dependent on the donor contribution. For the remaining four codes, planned expenditures are very small (Table 13).

Box 1. Determining Ghana's national climate change budget

The Government of Ghana has invested in a range of analytical studies to support the development of the 2014 National Climate Change Policy. One of these studies, *Climate change finance in Ghana*,[13] examined how climate change-related actions are being integrated into the national budgetary system. Fourteen government agencies were identified as having climate change-relevant spending in the national budget between 2011 and 2014. However, budget allocations were found to be very small, with a total budgeted expenditure of approximately US$210 million in 2014. This represented approximately 2% of government expenditure.

On completion of the studies, UNDP provided assistance to develop a set of climate change finance tracking tools for the Ministry of Finance, to help establish national oversight of climate change finance in Ghana. This led to the identification of 30 policy objective budget codes that collectively were considered to make up the national climate change budget for the planning period 2015-2017.

Three categories of climate change relevance were identified from the budget documentation, the national climate change policy master plan and the national development plan. The level of relevance of each chosen budget code was determined by the extent to which the expenditure explicitly supported an action identified in the national climate change policy and its associated five-year master plan, and was identified as a climate change response in the national development plan.

For each category of climate change relevance, a percentage weight was then applied to the gross expenditure to estimate the climate change-relevant component. The rationale for this approach was that if only part of the intended impact of a budget line activity was relevant to climate change, then only a commensurate part of the expenditure should be recorded as being climate change relevant. At present, there is no objectively correct percentage of spending to attribute to climate change expenditure, so this approach should be viewed as providing a 'best estimate' that helps to identify strategic budget spending being made by individual ministries.

Table 13. Ghana budget estimates for climate change-relevant policy objective budget codes, 2017

Ministry	Climate change budget code	Code description	Government of Ghana	Donor	Total budget
			GH¢, millions		
Ministry of Food and Agriculture	030103	Promote seed and planting material development	<0.1	0	<0.1
	050202	Strengthen institutional framework to promote research and development and its application	<0.1	0	<0.1
Ministry of Lands and Natural Resources	030803	Strengthen institutional and regulatory framework for management of natural resources	10.3	103.0	113.3
	031001	Maintain and enhance ecological integrity of protected areas	2.1	0	2.1
	031101	Reverse forest and land degradation	24.5	11.3	35.8
Ministry of Sanitation and Water Resources	051301	Improve management of water resources	0.6	0	0.6
	051303	Accelerate provision of improved environmental sanitation facilities	8.5	22.7	31.2

Source: 2017 budget volumes for the Ministry of Food and Agriculture, the Ministry of Lands and Natural Resources , the Ministry of Sanitation and Water Resources and the Ministry of Finance[14, 15]

Uganda

Uganda's NDC commitments are expansive, with 41 broad objectives across seven 'sectors' (Table 14). They constitute a much broader set of climate change-related outcomes compared to Ghana's NDC commitments, with much more emphasis on actions (and hence public spending) that expand, promote, encourage and ensure.

Table 14. Uganda's domestically financed NDC commitments (unconditional)

Adaptation actions	
Agriculture	• Expand extension services • Expand climate information and early warning systems • Expand climate-smart agriculture • Expand diversification of crops and livestock • Expand value addition, post-harvest handling and storage and access to markets • Expand rangeland management • Expand small-scale water infrastructure • Expand research on climate-resilient crops and animal breeds • Extend electricity to the rural areas or expand the use of off-grid solar systems to support value addition and irrigation
Energy	• Increase efficiency in the use of biomass in the traditional energy sector • Promote renewable energy and other energy sources • Increase the efficiency in the modern energy sector, mainly of electricity • Ensure the best use of hydropower by careful management of the water resources • Climate-proof investments in electricity power sector
Forestry	• Promote intensified and sustained forest restoration efforts (afforestation and reforestation programmes, including in urban areas) • Promote biodiversity and watershed conservation (including re-establishment of wildlife corridors) • Encourage agroforestry • Encourage efficient biomass energy production and utilisation technologies
Health	• Conduct vulnerability assessments of the health sector to climate change impacts • Assess the impacts of climate change on human health and wellbeing • Improve early warning systems for disease outbreaks • Put in place contingency plans to develop climate change-resilient health systems • Strengthen public health systems by building hospitals (including regional referral hospitals) and supplying them with medicine, equipment and well-trained personnel • Make provision for a safe water chain and sanitation facilities to limit outbreaks of water-borne diseases and implement strong public awareness programmes to promote better hygiene
Infrastructure	• Ensure that land-use plans and building codes reflect the need to make public and private buildings more climate-resilient • Invest in making existing and new buildings more resilient • Update transport codes and regulations and implement compliance measures • Update risk assessment guidelines • Improve water catchment protection
Urban risk management	• Mainstream climate resilience in all sectors • Develop vulnerability risk-mapping based on better data on climate change impacts at sectoral and regional levels • Identify better drainage plans • Build more effective early warning systems • Improve emergency-related institutions and establish a contingency fund to take care of emergency needs following an extreme climate event
Water	• Improve water efficiency • Ensure water supply to key economic sectors, especially agriculture, and domestic use • Manage water resource systems, including wetlands, particularly in cities, in such a way that floods are prevented and existing resources conserved (through the establishment of an integrated water resources management system) • Extend electricity or expand the use of off-grid solar systems to support water supply
Mitigation actions	
Energy	• Construct an enabling infrastructure for electricity sector development, including power lines, substations and transmission facilities
Forestry	• Develop an enabling environment for forestry management
Wetlands	• Develop an enabling environment for wetland management

The Government of Uganda has not created a 'climate change budget' from which spending on NDCs could be evaluated. Uganda's budget is reported by vote function, programme and project for each institutional vote (e.g. the Ministry of Food and Agriculture). These votes – and the ministries and agencies they represent – form the basis for accountability to Parliament for public spending. Projects largely cover the capital expenditure needed to deliver specific policy outcomes. They therefore provide a basis by which to examine the budget for expenditures related to the country's NDC commitments.

The Approved Estimates of Revenue and Expenditure for 2016/17,[16] together with the Public Investment Plan for FY2016/17-2018/19[17] were reviewed to identify evidence of NDC-related spending. References to climate change, adaptation and mitigation were found in the text associated with 22 budget codes, across the agriculture, forestry, water and energy sectors. This highlights a significant recognition of climate change within the national budget documentation that can be linked to the country's NDC commitments. As with Ghana, external funding is a major component of the major budget estimates (Table 15).

Table 15. Uganda budget estimates for climate change-relevant policy objective budget codes, 2016/17

		Public Investment Plan budget code (projects)	2016/17 budget estimate UGX, billions		
			Government of Uganda	External	Total
Adaptation actions					
Agriculture	• Climate information and early warning systems	1371	16.3	0	16.3
	• Climate-smart agriculture	1357	5.8	0	5.8
	• Diversification of crops and livestock	1411	1.0	0	1.0
	• Value addition, post-harvest handling and storage and access to markets, including microfinance	1364	0.3	0	0.3
	• Rangeland management	1363	0.6	32.0	32.6
	• Small-scale water infrastructure	1417	21.5	52.5	74.0
	• Research on climate-resilient crops and animal breeds	382	9.1	0	9.1
Energy	• Increasing the efficiency in the energy sector	1304	1.9	0	1.9
	• Ensuring the best use of hydropower	1302, 1350, 1351	14.1	13.9	28.0
	• Climate-proofing investments in power sector	1392	2.0	0	2.0
Forestry	• Forest restoration efforts (afforestation and reforestation programmes)	161	5.7	0	5.7
Urban risk management	• Improving emergency-related institutions and establishing a contingency fund to take care of emergency needs following an extreme climate event	922	3.6	0	3.6
Water	• Water supply to key economic sectors and domestic use	1396, 1397, 1398, 1399	20.0	0s	20.0
	• Integrated water resources management system	0165, 1348	4.7	7.6	12.3
Mitigation actions					
Forestry	• Development of enabling environment for forestry management	1301	2.2	1.6	3.8
Wetlands	• Development of enabling environment for wetland management	146	2.9	0	2.9

Source: Republic of Uganda (2016)[18]

Kenya

Kenya's broad-ranging NDC commitments are made by the country's Medium Term Plan sector grouping (Table 16), demonstrating a strong link with the national development plan.

Table 16. Kenya's NDC commitments (no distinction is made between unconditional and conditional)

Medium Term Plan sector	Priority adaptation actions
Agriculture, livestock development and fisheries	Enhance the resilience of the agriculture, livestock and fisheries value chains by promoting climate-smart agriculture and livestock development
Devolution	Mainstream climate change adaptation into county-integrated development plans and implement the 'Ending Drought Emergencies' strategy
Education and training	Enhance education, training, public awareness, public participation and public access to information on climate change adaptation across public and private sectors
Energy	Increase the resilience of current and future energy systems
Environment	Enhance climate information services Enhance the resilience of ecosystems to climate variability and change
Gender, vulnerable groups and youth	Strengthen the adaptive capacity of the most vulnerable groups and communities through social safety nets and insurance schemes
Health	Strengthen integration of climate change adaptation into the health sector
Human resources	Enhance adaptive capacity and resilience of the informal private sector
Infrastructure	Climate-proofing of infrastructure (energy, transport, buildings, ICTs)
Land reforms	Mainstream climate change adaptation in land reforms
Oil and mineral resources	Integrate climate change adaptation into the extractive sector
Population, urbanisation and housing	Enhance the adaptive capacity of the population, urbanisation and housing sector
Private sector/trade	Create an enabling environment for the resilience of private sector investment Demonstrate an operational business case
Public sector reforms	Integrate climate change adaptation into the public sector reforms
Science, technology and innovation	Support innovation and the development of appropriate technologies that promote climate-resilient development
Tourism	Enhance the resilience of the tourism value chain
Water and irrigation	Mainstream climate change adaptation in the water sector by implementing the *National Water Master Plan (2014)*
	Priority mitigation actions
Agriculture	Climate-smart agriculture in line with the National Framework
Energy	Expansion in geothermal, solar and wind energy production, other renewables and clean energy options; enhancement of energy and resource efficiency across the different sectors; clean energy technologies to reduce over-reliance on wood fuels
Forestry	Make progress towards achieving a tree cover of at least 10% of the land area of Kenya
Transport	Low-carbon and efficient transportation systems
Waste management	Sustainable waste management systems

The 2017/2018 Programme Based Budget,[19] published by the Treasury in January 2017 lists several planned spending programmes over the period 2017/2018-2019/2020 that reflect commitments made in the NDC to achieve a low-carbon, climate-resilient development pathway. A review of sub-programme key outputs identified eight relevant sub-programmes across five out of the eight state departments that will play a significant role in the early implementation of the NDC (Table 17). Planned expenditure levels are generally low, except for major investments in rail transport and public support to the development of geothermal generation capacity.

Table 17. Kenya budget estimates for climate change-relevant policy objective budget codes, 2017/19-2019/20

State Department	Budget Vote	Sub-programme	Title	2017/18	2018/19	2019/20
				KSh, millions		
Transport	1092	020310	SP3.1 Rail transport	75,832	61,917	61,917
Housing and Urban Development	1094	0105040	SP5.4 Urban development and planning services	3,461	1,565	1,669
Natural Resources	1106	1003010	SP3.1. Forest conservation and management	7,342	7,771	7,955
Energy	1152	0212010	SP2.1 Geothermal generation	17,118	28,862	36,263
		0213020	SP3.2 Rural electrification	12,631	20,841	13,491
		0214010	SP4.1 Alternative energy technologies	1,335	1,754	1,556
Agriculture	1161	0108010	SP2.1 Lands and crops development	853	1,188	1,503
		0108030	SP2.3 Quality assurance and monitoring of outreach services	1,041	1,142	1,666

Source: Republic of Kenya (2017)[20]

Discussion

One finding from this four-country review is that, based on the priority sectors identified in the NDCs, the number of government ministries required to advance early NDC implementation is quite small. Therefore, efforts to strengthen budget planning and reporting on climate change-related actions could usefully focus on these ministries, with a lighter regime applied elsewhere across the government administration. A focused, sector-based approach would be consistent with climate change planning processes, with the development of climate-resilient sector plans in some countries. Such plans need to be augmented with a finance plan that links directly to the national budget.

A significant challenge is how to customise international reform efforts to each country's specific circumstances. This review suggests that national accountability and international reporting on NDC-related finance could be strengthened by exploiting opportunities created by two major internationally supported public expenditure reforms: programme-based budgeting and medium-term expenditure frameworks.

On the former, a challenge at present is that there appears to be a mismatch between the detailed project-level data now appearing in national budgets (with additional information recorded to varying degrees in supplementary documentation) and the way some NDC actions are worded. A closer matching of NDC policies and actions to budget-line descriptions should be considered, so that additional analytical work to support NDC monitoring and reporting is minimised. In this regard, the development of a climate change budget by the Government of Ghana, based on pre-existing budget codes, is a noteworthy model that could be considered elsewhere.

Second, studies of performance-based budgeting[21] have concluded that the annual budget timetable is often too compressed for good analysis of programme quality. This suggests that more attention could be paid to strengthen the treatment of climate change (and specifically NDC) actions within ongoing Medium-Term Expenditure Framework planning processes. There are precedents from which lessons can be drawn, including the treatment of environmental spending within Medium-Term Expenditure Frameworks,[22] which emphasised the importance of well-costed and economically sound programmes. This highlights the importance of strengthening capabilities to prepare such programmes within government ministries, rather than relying on external agencies' resources.

The credibility of the budget, i.e. the degree of deviation between planned and actual spending over a 12-month period, appears to be a significant challenge for climate change actions and one that warrants further analytical attention. Such analysis needs to determine whether implementing ministries are not securing their budget allocations from ministries of finance, or whether budgeted funds are being transferred but are not being spent. It is important to determine whether this lack of credibility applies disproportionately to climate change actions (as suggested by the budget data in Ethiopia) rather than reflecting the broader challenges associated with many low-income country's budget systems.[23] The lack, or late transfer, of funds from ministries of finance may suggest domestic revenue constraints or the failure of development partners to provide external finance as planned. As many climate change actions involve significant capital expenditures, which have been heavily reliant on donor support in low-income countries, this is an issue that needs to be better understood to help improve the implementation of climate change actions in these countries.

Conclusions

This Working Paper has explored the question of whether climate change actions, in particular those cited in NDCs, can be identified in national budget documentation to determine current and planned levels of spending. The country evidence reviewed suggests that such spending can be identified, although with low precision at present. Greater confidence in spending figures will require improved communication between those ministries setting climate change targets, national planning authorities and the finance ministry.

If the NDCs are to be achieved, climate change programming needs to become more integrated with the national public finance regime. Such efforts offer potential gains for two reasons: (1) to strengthen national accountability over climate change public spending; and (2) to contribute to improved international reporting to the UNFCCC on the commitments made to realise the goals of the Paris Agreement. There are some signs that this is starting, both in the countries reviewed and elsewhere,[24] but much more needs to be done.

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