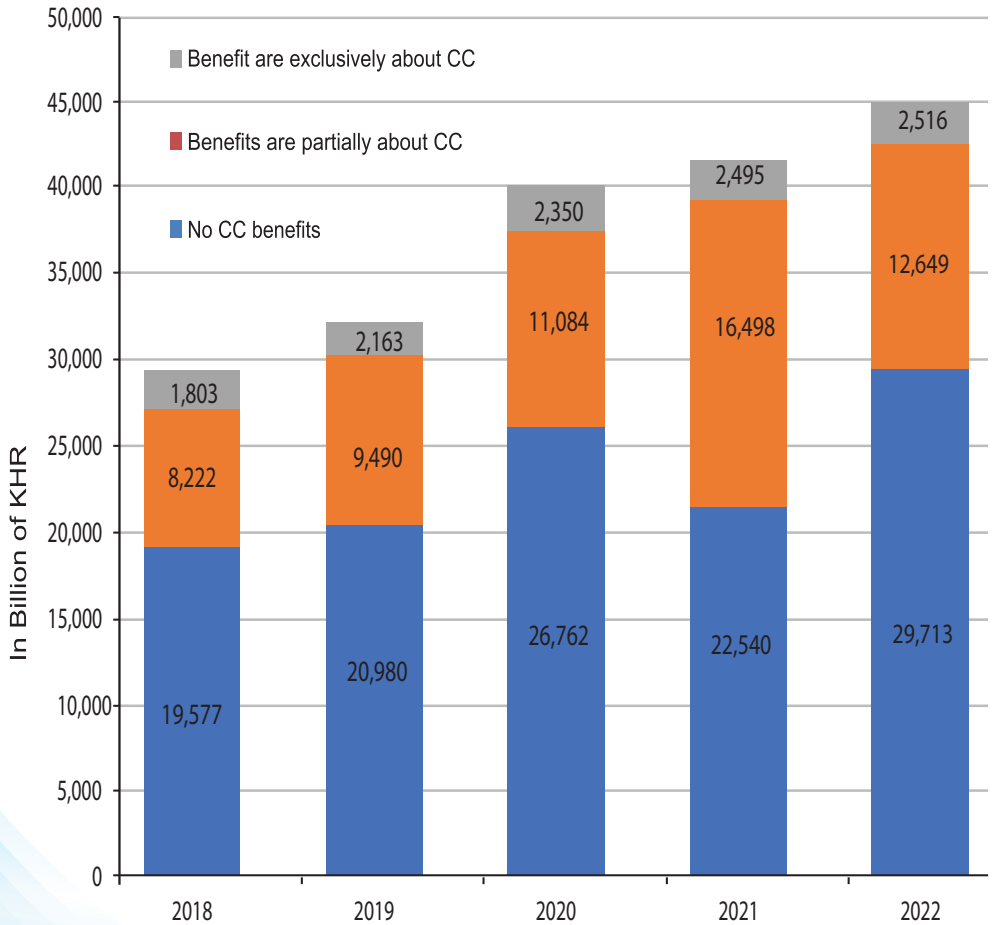




ក្រសួងសេដ្ឋកិច្ច និង ហិរញ្ញវត្ថុ  
Ministry of Economy and Finance  
ធានានូវកំណើន និង អភិវឌ្ឍន៍ប្រកបដោយចីរភាព  
Ensure Sustainable Growth and Development

## Cambodia Climate Public Expenditure Review 2022



November 2023

## Preface

As one of the countries most affected by climate change, Cambodia has committed to address this challenge both locally and internationally. Cambodia submitted its updated Nationally Determined Contribution (NDC) to the UNFCCC on December 30, 2020, and the Cambodia Climate Change Strategic Plan (CCCSP, 2014-23) is in place with action plans in 14 ministries and agencies. In 2021, Cambodia was the first country in ASEAN and only the second Least Developed Country in the world to submit a Long-Term Strategy for Carbon Neutrality with a 2050 target.

Since 2017, Ministry of Economy and Finance has included guidance on climate change in annual budget circulars, and in 2019 climate change was recognized as a key challenge to be addressed both in the debt policy and in the budget of the Government. Key ministries have also started to integrate climate change in the way they prioritize activities for the national budget with technical supports from our partners. This report provides an update on climate finance trends, including data up to fiscal year 2022, to monitor to what extent Cambodia and its development partners are effectively supporting national climate change priorities.

In 2022 expenditure, climate change expenditure remains high at 2.1% of GDP (from 2.3% in 2021) or KHR 2,516 billion, reflecting the decline in spending on road and health, but offset by the increase in water infrastructure against floods and droughts, and agriculture, as well as the continued cash distribution in social protection to the poor and vulnerable, amounted to KHR 1,517.6 Billion in 2022. The lower CC expenditure proportion to GDP is mainly due to the 22% decline in domestic financed CC expenditure, which accounts for a 38% share.

In the current Government mandate (2023-28), climate change is also reflected in the pentagon 4 of the Pentagonal Strategy-Phase 1 and the National Strategic Development Plan (2019-2023) and its indicators. This has been translated into sectoral strategies and budgets. Since the 2020 CPER report, it assesses alignment of expenditure with NDC actions and in this year it also reports the 2022 online NDC tracking results.

While many actions are receiving financing, the financing gap is estimated at 38%. While the level of climate-relevant public expenditure keeps increasing, it is still below the levels required to address the urgent climate change issues that Cambodia is facing. Continued development of flood and drought resilient infrastructure is required, as well as interventions in livelihoods, water supply and social sectors.

This report also looks at gender issues in the climate change response. Partial data indicates that gender issues remain under-addressed in climate change programmes. Case studies of specific climate change programmes show that initiatives have been taken to address these gender issues, but comprehensive information on the effectiveness of these efforts is not always available.

The Ministry of Economy and Finance will continue to be actively involved in these efforts to assess the effectiveness of climate finance, alongside the National Council for Sustainable Development and the Council for the Development of Cambodia.



Ros Seilava  
Secretary of State  
Ministry of Economy and Finance



## Acknowledgment

The Ministry of Economy and Finance would like to express its gratitude to the extended cooperation and contribution from the National Council for Sustainable Development (NCSD), the Cambodia Climate Change Alliance (CCCA) and the regional project on the Governance of Climate Change Finance (UNDP/Sweden) in providing technical support and to the Cambodian Rehabilitation and Development Board (CRDB) in providing data from the Cambodia ODA database as an input to this report.

The Cambodia Climate Change Public Expenditure Review report has been developed with technical support from the Department of Climate Change (MOE/NCSD) and the Cambodia Climate Change Alliance programme (funded by the European Union, Sweden and UNDP), by the Climate Change Technical Team of the Ministry of Economy and Finance with support of their technical officials from the General Department of International Cooperation and Debt Management (GDICDM) and the General Department of Budget (GDB), and technical officials of the Cambodian Rehabilitation and Development Board (CRDB).

## Contents

Preface .....	i
Acknowledgment .....	ii
List of Figures .....	iv
List of Tables .....	iv
List of Abbreviation and Acronyms .....	v
Executive Summary.....	1
I. Climate expenditure.....	2
I.1 Overall trend .....	2
I.2 Sectoral allocation of climate change-related expenditure.....	3
II. Sources of climate public expenditure.....	6
III. Assessment of Gender integration in Climate Change Programming .....	8
III.1 Gender in key climate change projects.....	8
III.2 A case of incorporating gender in a project on using efficient electric cook appliances avoiding deforestation and reducing emissions.....	9
IV. Public spending and NDC priorities .....	11
References .....	12
ANNEXES .....	13
Annex 1: Scope of the study and data sources .....	13
a. Scope of this study .....	13
b. Data sources.....	13
c. Typology and Weights .....	14
Annex 2: Unweighted Climate Change expenditure by ministries and agencies (in billions of KHR).....	15
Annex 3: Largest Items of Climate Change Expenditure (in Billions of KHR) .....	16
Annex 4: NDC's related spending and annual average finance cost (in millions of USD).....	18

## List of Figures

Figure 1: Public expenditure with CC benefits vs. total public expenditure (in billions of KHR)	3
Figure 2: Allocation of climate expenditure per ministry in 2022	4
Figure 3: Selected ministries and agencies' climate change expenditure 2018-2022	7
Figure 4: Source of Public Climate Finance (In billions of KHR)	8
Figure 5: Source of CC external finance (In billions of KHR)	9
Figure 6: Shares of Adaptation (A) and Mitigation (M) in CPER 2022	10
Figure 7: 2022 climate and gender public expenditure (in billions of KHR, from external partners only)	12

## List of Tables

Table 1: Proportion of climate change expenditure to total public expenditure and GDP	3
Table 2: Climate change expenditure by the ministries (total development partner and national) in billions of KHR	6
Table 3: Climate change expenditure by ministry (total development partner and national, in percentage of total climate change expenditure)	6
Table 4: Climate change expenditure by ministry (total, in percentage change)	7
Table 5: top 25 of Climate change (weighted) expenditure per development partner (in Billions of KHR)	9
Table 6: Climate Change finance and gender linkages in CDC's ODA database (in Billions of KHR)	11
Table 7: Climate Change public expenditure typology and weights	18

## List of Abbreviation and Acronyms

ADB	Asian Development Bank
ASPIRE	Agricultural Service Programme for Innovation, Resilience and Extension
CBR	Cost Benefit Ratio
CC	Climate Change
CCAP	Climate Change Action Plan
CCCSP	Cambodia Climate Change Strategic Plan 2014-2023
CCFF	Climate Change Financing Framework
CDC	Council for the Development of Cambodia
CRDB	Cambodia Rehabilitation and Development Board
CPER	Climate Public Expenditure Review
CPEIR	Climate Public Expenditure and Institutional Review
CRI	Climate Relevance Index
DBF	Department of Budget Formulation
DCC	Department of Climate Change
DI	Department of Investment
FA	Forestry Administration
FCPF	Forest Carbon Partnership Facility
FiA	Fisheries Administration
FMIS	Financial Management Information System
GCF	Green Climate Fund
GDP	Gross Domestic Product
GMAGs	Gender Mainstreaming Action Groups
GDANCP	General Department of Administration for Nature Conservation and Protection
GHG	Greenhouse Gas
KHR	Khmer Riel
MAFF	Ministry of Agriculture, Fisheries and Forestry
MCS	Ministry of Civil Service
MEF	Ministry of Economy and Finance
MIS	Management Information System
MISTI	Ministry of Industry, Sciences, Technology, and Innovation
MLMUPC	Ministry of Land Management, Urban Planning and Construction
MME	Ministry of Mines and Energy
MoE	Ministry of Environment
MoEYS	Ministry of Education, Youth and Sports
MOH	Ministry of Health
MoInf	Ministry of Information
MoT	Ministry of Tourism
MoWRAM	Ministry of Water Resources and Meteorology
MPTC	Ministry of Posts and Telecommunications

MPWT	Ministry of Public Work and Transport
MRD	Ministry of Rural Development
MWA	Ministry of Women's Affairs
NCCC	National Climate Change Committee
NCDD	National Committee for Sub-National Democratic Development
NCDDS	National Committee for Sub-National Democratic Development Secretariat
NCDM	National Committee for Disaster Management
NCSD	National Council for Sustainable Development
NGO	Non-Governmental Organization
NRS	National REDD+ Strategy
NSDP	National Strategic Development Plan
NSPC	National Social Protection Council
ODA	Official Development Assistance
PB	Program-based Budget
PFM	Public Financial Management
PFMRP	Public Financial Management Reform Program
REDD+	Reducing Emissions from Deforestations and Forest Degradation, and Foster Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks
RGC	Royal Government of Cambodia
SIS	Safeguard Information System
SNA	Sub-National Administrations
SNIF	Sub-National Investment Fund
SoI	Summary of Information of the Safeguards System
WRI	World Resources Institute

## Executive Summary

### Key messages for the 2022 CPER:

- The share of climate change expenditure in GDP in 2021 and 2022 is 2.3% and 2.1%, respectively, reflecting the decline in spending in road and health but offset by the increase in flood and drought water resilient infrastructures, and climate-resilient agriculture, as well as the continued cash distribution in social protection to the poor and the vulnerable. The spread of Covid-19 remained in 2022 but was well managed due to the effect of high vaccination coverage since 2021.
- The drop to 2.1% of GDP is due to a decline in domestic-financed climate change spending. CC domestic-financed spending dropped by 22% in 2022 and represented 38% of total climate change expenditures, down from 49% in 2021; However, the government's fiscal expansion in 2021 was already high, covering a range of road development and rehabilitation projects, especially in Kampong Som and Siem Reap provinces, among other infrastructure projects such as dam, irrigation and rural infrastructure.
- The climate change concessional loan disbursements in 2022 increased by 17%, while the overall ODA grew by 12%, mainly contributed by mega development project disbursement in irrigation system, infrastructure and agriculture.
- Climate change integration in "hard" infrastructure investments continues to grow slightly, especially from external sources offsetting the drop in domestic sources, while the crucial "soft" expenditure, for the social protection of the vulnerable group and the poor, has been continued through cash transfers with US\$ 379 million in 2022, and amounted to US\$ 1,088.15 million from June 2020 until June 2023.

In 2022, the infrastructure ministries (MPWT, MoWRAM and MRD) shared 52.5% of the climate change expenditure, slightly increased from 52.4% of the previous year, with flood, drought and rural infrastructure contributing most. In this context, MoWRAM took the largest share with 24% of climate expenditure in 2022, mainly due to increase in big investments in dam, irrigation and water resource management against flood and drought. In the same year, MPWT took the second largest share with 21% of Cambodia's climate change expenditure, dropped by 13% in 2022, compared to the already high investment in 2021. However, investment in climate-resilient infrastructure remained high, although the construction and rehabilitation of urban roads in Kampong Som Province (37 roads) and Siem Reap Province (38 roads) were completed at the end of 2021. MAFF shared 13.4% due to large investment in CC resilient agriculture, mainly financed by development partners, followed by MRD which shared 7.9%, SNA (4%), MoE (2.2%), NGO (2.1%), and MoH (1.8%), while other ministries/institutions shared less than 1% of the total climate spending.

Investment in climate-related rural infrastructures (small irrigation, rural water and sanitation, and rural roads), under MRD rebound by 39% in 2022 compared to 2021, from its decline of 28% from 2020 to 2021, due to the increase in disaster risk management, road, and water and sanitation projects in rural areas. The climate change expenditure in irrigation system and dams under MoWRAM continued to increase by 7% in 2022, mainly contributed by the big investment in river dams and water reservoirs for preventing flood and drought, and rehabilitation of irrigation systems. In the agriculture, forestry and fisheries sectors, climate change expenditure rebound significantly by 57% in 2022, compared to the 16% drop in 2021. External finance remains the main source of finance for the agriculture sector, representing about 83% in 2022, reflecting development partners' high support for climate action in agriculture, especially in resilient crops, small-holder farmers, and resilient rice commercialization. The climate change expenditure in the social sectors (education, health and gender) obtained a smaller share of 2.7% of total climate expenditure or dropped by 62% in 2022, compared to a 7.2% growth in 2021, reflecting the lower level of health-related interventions in 2022 as the full Covid-19 vaccination, good pandemic management and measures in 2020 and 2021 had yielded the result. Climate change spending in the much smaller shares in social sectors, education sector under MoEYS (0.1% to the total) and gender under MWA (0.8%) also declines by 57% and 54% respectively in 2022, where these activities and people's physical movement were still restrained by lighter Covid-19 variants. In the same year, MoH's cc expenditure shared only 1.8% or dropped by 65%. MoE managed about 2.2% of the total climate spending in 2022 from 5.9% in 2021. MoE's sources of finance are 18% from domestic finance,

whereas the 82% external sources include projects on forest carbon partnership, biodiversity and conservation and natural resource management. The water supply and sanitation sector<sup>1</sup> under MISTI shares about 0.8% of the total climate spending in 2022 with a 70% decline compared to 2021, mainly due to lower investment projects in clean water supply and sanitation in 2022. Climate change spending in the energy and mining sectors under the MME represents 0.8% in 2022, a slight drop from a 0.9% share in 2021, due to lower spending in domestic source, while external financing for energy sources and transmission lines remains growing. In this sector, much larger investment is done by the private sector. SNAs represent about 4% of the total climate change spending, increasing by about 0.7% from 2021.

## I. Climate expenditure

### I.1 Overall trend

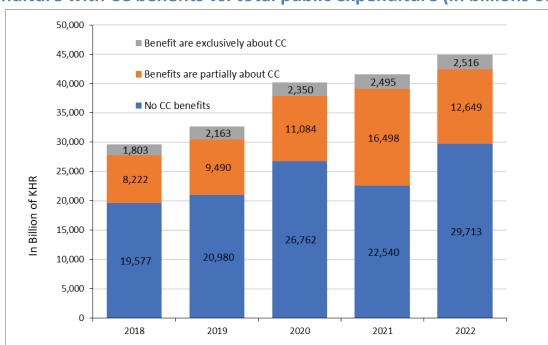
The share of the overall climate change-related expenditure that fully or partially delivered climate change benefits declined, from 45.7% in 2021 to 33.8% of government expenditure in 2022. During the period 2019-2022, the average share is 37%. Once climate change relevance weights (typology and weights explained in point C of the Annex 1) are applied to this expenditure, climate change expenditure<sup>2</sup> constituted 5.6% of the total public expenditure in 2022, a 0.4% decrease from 2021. The proportion of climate change expenditure to GDP is 2.1% in 2022, compared to 2.3% in 2021. The drop in this proportion was mainly contributed by lower spending from domestic source, which declined by 22% and had a 38% share in 2022. In absolute terms, climate change expenditure has slightly increased from KHR 2,495 billion in 2021 to KHR 2,516 billion (about USD 629 million or about 1% increase) in 2022, reflecting the decline in road and health sector spending, but offset by the increase in water infrastructure against floods and droughts and agriculture, as well as the continued cash distribution in social protection to the poor and the vulnerable.

**Table 1: Proportion of climate change expenditure to total public expenditure and GDP**

	2018	2019	2020	2021	2022
Public expenditure with CC benefits vs. total public expenditure	33.9%	35.7%	33.4%	45.7%	33.8%
CC public expenditure (weighted) vs. total public expenditure	6.1%	6.6%	5.8%	6.0%	5.6%
CC public expenditure (weighted) vs. GDP	1.8%	2.0%	2.2%	2.3%	2.1%

Source: NIS, MEF, CDC & expert team calculation.

**Figure 1: Public expenditure with CC benefits vs. total public expenditure (in billions of KHR)**



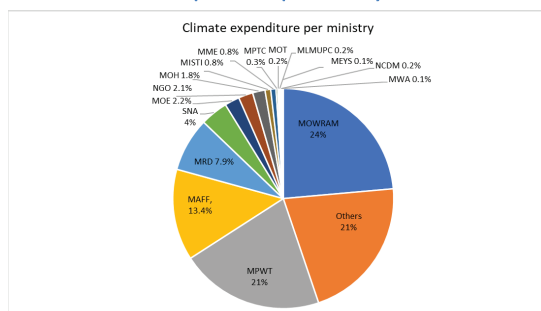
Source: MEF, CDC, and expert team calculation.

<sup>1</sup> Water supply and sanitation systems for communities in the rural areas are under the MRD.

<sup>2</sup> In this report, "climate change expenditure" refers to public expenditures that deliver climate change benefits, once they have been weighted for climate change relevance.

## 1.2 Sectoral allocation of climate change-related expenditure

Figure 2: Allocation of climate expenditure per ministry in 2022



Source: MEF, CDC, and expert team calculation.

In 2022, the infrastructure ministries (MPWT, MoWRAM and MRD) shared 52.5% of the climate change expenditure, slightly increased from 52.4% in the previous year, due to the continued fiscal expansion as part of the Covid-19 measures, as well as flood and drought infrastructure and rural infrastructure.

In this context, MoWRAM took the largest share with 24% of climate change expenditure in 2022, mainly due to an increase in big investments in dam, irrigation and water resource management against flood and drought. In the same year, the MPWT took the second largest share with 21% of Cambodia's climate change expenditure, which dropped by 13% in 2022 compared to the already high investment in 2021. However, investment in climate resilient infrastructure remained high, although the construction and rehabilitation of urban roads in Kampong Som Province (37 roads) and Siem Reap Province (38 roads) were completed at the end of 2021. MAFF shared 13.4% due to large investment in CC resilient agriculture, mainly financed by development partners, followed by MRD which shared 7.9%, SNA (4%), MoE (2.2%), NGO (2.1%), and MoH (1.8%), while other ministries/institutions shared less than 1% of the total climate spending. Investment in climate-related rural infrastructure (small-scale irrigation, rural water and sanitation, and rural roads), under MRD rebound by 39% in 2022 compared to 2021, from its decline of 28% from 2020 to 2021, due to the increase in disaster risk management, road, and water and sanitation projects in rural areas. The climate change expenditure in irrigation system and dams under MoWRAM continued to increase by 7% in 2022, compared to 2021, mainly due to large investments in river dams and water reservoirs for flood and drought prevention, and irrigation rehabilitation.

In the agriculture, forestry and fisheries sectors climate change expenditure rebound significantly by 57% in 2022, compared to the 16% drop in 2021. External finance remains the main source of finance in the agriculture sector, representing about 83% in 2022, reflecting development partners' high support for climate action in agriculture, especially in resilient crop, small-holder farmers, and resilient rice commercialization.

The climate change expenditure in the social sectors (education, health and gender) obtained a smaller share of 2.7% to total climate expenditure or dropped by 62% in 2022, compared to a 7.2% growth in 2021, reflecting the lower level of health-related interventions in 2022 as the full Covid-19 vaccination, good pandemic management and measures in 2020 and 2021 had yielded the result. Climate change spending in the much smaller shares of the social sectors, education sector under MoEYS (0.1% to the total) and gender under MWA (0.8%) also declined by 57% and 54% respectively in 2022, where these activities and people's physical movement were still restrained by lighter Covid-19 variants. MoH's CC expenditure shared only 1.8% or dropped by 65% due to Covid-19 subdued in 2022. MoE managed about 2.2% of the total climate spending in 2022, compared to the 5.9% in 2021. The MoE's sources of funding are 18% from domestic sources, while the 82% from external sources include projects on forest carbon partnership, biodiversity and conservation and natural resource



management. The water supply and sanitation sector<sup>3</sup> under MISTI, shares about 0.8% of the total climate spending in 2022 with a 70% decline compared to 2021, mainly due to lower investment projects in clean water supply and sanitation in 2022. Climate change spending in the energy and mining sectors under the MME represents 0.8% in 2022, a slight drop from a 0.9% share in 2021, due to lower spending from domestic sources, while external financing for the energy sources and transmission lines continues to grow. In this sector, much larger investment is done by the private sector. SNAs represent about 4% of the total climate change spending, increasing by about 0.7% from 2021.

It should be noted that the CPER only reviews in detail the expenditure of the ministries that have adopted climate change action plans. Since the 2020 climate expenditure review, in the specific context of the COVID-19 pandemic, there has been a very significant increase in social protection expenditure via cash transfer, with a focus on ID poor citizens. This expenditure is reported under the Ministry of Social Affairs, Veterans and Youth rehabilitation, which is included in the CPER under the category “others”.

**Table 2: Climate change expenditure by ministry (total development partner and national) in billions of KHR**

Climate Change Expenditure	2018	2019	2020	2021	2022
MLMUPC	17.5	24.0	23.1	20.6	4.7
MOT	1.5	1.8	2.6	4.3	4.9
MISTI	24.2	23.2	25.3	68.8	20.8
MOINFO	0	0	0	0	0
MPTC	7.1	5.1	5.5	6.7	6.7
MAFF	167.6	185.7	256.9	214.8	337.5
MME	20.5	12.0	50.7	22.4	19.4
MOWRAM	401.9	546.2	503.6	556.0	593.2
MPWT	451.3	564.4	646.0	609.6	529.8
MRD	140.2	154.3	197.1	142.7	199.0
MOH	41.4	49.6	38.3	131.8	45.9
MoEYS	0.7	1.2	1.5	6.6	2.8
MoWA	5.3	3.4	2.6	3.6	3.4
NCDM	8.1	9.6	3.4	4.8	3.9
MOE	98.1	134.9	110.9	147.9	54.7
SNA	68.2	82.3	82.6	82.9	101.6
NGO	76.6	54.5	53.5	59.9	53.2
Total CC, CCFF ministries	1,530	1,852	2,004	2,083	1,982
Others	272.9	310.6	346.9	411.6	534.2
Total CC, all ministries	1,803	2,163	2,350	2,495	2,516
in millions of USD	450.8	540.8	587.6	623.8	628.9

Source: MEF, CDC, and expert team calculation.

**Table 3: Climate change expenditure by ministry (total development partner and national, in percentage of total climate change expenditure)**

Climate Change Expenditure	2018	2019	2020	2021	2022
MLMUPC	1.0%	1.1%	1.0%	0.8%	0.2%
MOT	0.1%	0.1%	0.1%	0.2%	0.2%
MISTI	1.3%	1.1%	1.1%	2.8%	0.8%
MOINFO	0.0%	0.0%	0.0%	0.0%	0.0%
MPTC	0.4%	0.2%	0.2%	0.3%	0.3%

<sup>3</sup> Water supply and sanitation systems for communities in the rural areas are under the MRD. Water supply is mainly invested and operated by the state-owned enterprises and the private sector.

MAFF	9.3%	8.6%	10.9%	8.6%	13.4%
MME	1.1%	0.6%	2.2%	0.9%	0.8%
MOWRAM	22.3%	25.3%	21.4%	22.3%	23.6%
MPWT	25.0%	26.1%	27.5%	24.4%	21.1%
MRD	7.8%	7.1%	8.4%	5.7%	7.9%
MOH	2.3%	2.3%	1.6%	5.3%	1.8%
MoEYS	0.0%	0.1%	0.1%	0.3%	0.1%
MoWA	0.3%	0.2%	0.1%	0.1%	0.1%
NCDM	0.5%	0.4%	0.1%	0.2%	0.2%
MOE	5.4%	6.2%	4.7%	5.9%	2.2%
SNA	3.8%	3.8%	3.5%	3.3%	4.0%
NGO	4.2%	2.5%	2.3%	2.4%	2.1%
Others	15.1%	14.4%	14.8%	16.5%	21.2%

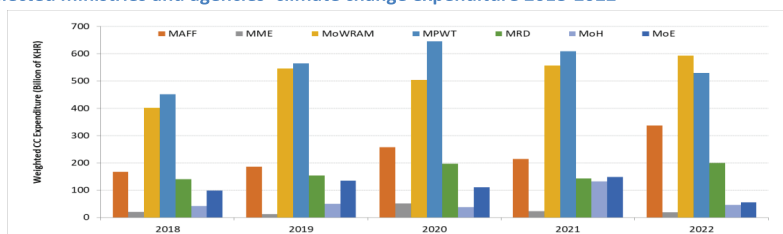
Source: MEF, CDC, and expert team calculation.

**Table 4: Climate change expenditure by ministry (total, in percentage change)**

Ministries/institutions	2018	2019	2020	2021	2022
MLMUPC	-16%	38%	-4%	-11%	-77%
MOT	-56%	23%	45%	61%	16%
MISTI	2%	-4%	9%	172%	-70%
MOInfo					
MPTC	22%	-28%	8%	21%	0%
MAFF	17%	11%	38%	-16%	57%
MME	-87%	-42%	323%	-56%	-13%
MOWRAM	138%	36%	-8%	10%	7%
MPWT	151%	25%	14%	-6%	-13%
MRD	40%	10%	28%	-28%	39%
MOH	37%	20%	-23%	244%	-65%
MEYS	62%	88%	25%	334%	-57%
MWA	32%	-35%	-25%	41%	-7%
NCDM	495%	18%	-65%	43%	-19%
MOE	233%	38%	-18%	33%	-63%
SNA	139%	21%	0%	0%	23%
NGO	72%	-29%	-2%	12%	-11%
Others	153%	14%	12%	19%	30%

Source: MEF, CDC, and expert team calculation.

**Figure 3: Selected ministries and agencies' climate change expenditure 2018-2022**



Source: MEF, CDC, and expert team calculation.

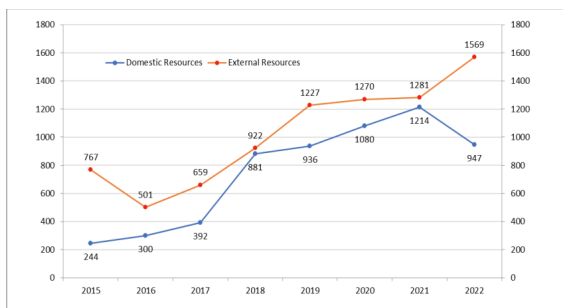
## II. Sources of climate public expenditure

The amounts allocated from domestic resources (national budget) for climate change expenditure reached KHR 947 billion in 2022, a decrease of KHR 267 billion or 22% compared to 2021. In 2022, the domestically financed climate change expenditure accounts for 38% of the total climate change expenditure, declining from 49% in the previous year), while externally financed climate change expenditure shares 62% and increased by 22.4% compared to 2021. Despite a slight drop, the investment in domestic and external financed projects continues in the areas of overall infrastructure, health, and social protection as part of the Covid-19 measures.

The RGC's social protection package provides cash transfers to the poor and vulnerable households, by using the Ministry of Planning's ID Poor, contributing indirectly to more resilience to climate change or increased adaptation capacity for their livelihoods. During the implementation of the "Cash Transfer for the Poor and Vulnerable Households during COVID-19" from June 2020 to June 2023, 705,716 households have received cash assistance from the national budget totaling more than KHR 4,352.6 billion (or US\$1,088.15 million)<sup>4</sup>. In 2022, this social programme was estimated to contribute to the livelihood adaptation response in climate expenditure for about KHR 1,517.6 Billion<sup>5</sup> (or US\$ 379.4 million).

The majority of funded climate change expenditure, including external sources, continues to flow through the national treasury and MEF financial systems, representing 79% of the total in 2022.

**Figure 4: Source of Public Climate Finance (In billions of KHR)**



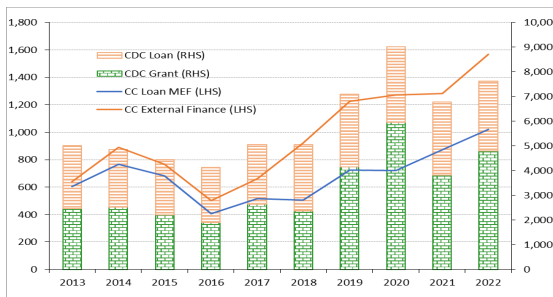
Source: MEF, CDC, and expert team calculation.

To look at the loan disbursement flow, data from the MEF's General Department of International Cooperation and Debt Management is a useful resource. The total concessional loan disbursements amounted to KHR 5,356 billion (or about USD 1.34 billion) in 2022, rebounding by 14.6% from the 4% decline in 2021. In terms of the CC spending, the CC concessional loans jumped to KHR 1,019 billion, an increase of 17%. At the same time, the CDC's total ODA increased by 12%, passing from US\$ 1,697 million in 2021 to US\$ 1,905 million in 2022, mainly due to the instant investment in water reservoirs and irrigation. In the overall ODA trend, despite the decline in 2021, climate finance has performed relatively well, offset by the domestic financed infrastructure development in 2021 during Covid-19. Unlike 2021, the climate finance in 2022 is driven more by external sources, while domestic finance declines.

<sup>4</sup> NSPC Cambodia's public report on the social protection in Cambodia on July 4, 2023.

<sup>5</sup> The partially-CC benefits amount to KHR 1,517.6 billion from the national budget within 2022.

**Figure 5: Source of CC external finance (In billions of KHR)**



Source: MEF, CDC, and expert team calculation.

In terms of CC external resources, Table 5 below shows that the top five development partners for climate change expenditure in 2022 are ADB (18%), followed by World Bank (14%), France (13%), Japan (12%), and China (11%).

**Table 5: top 25 of Climate change (weighted) expenditure per development partner (in Billions of KHR)**

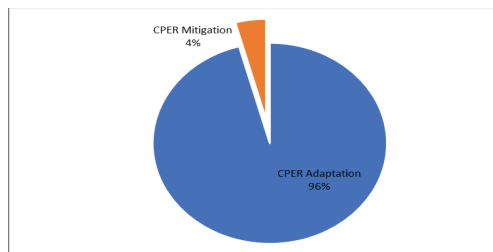
No.	Development partners	2017	2018	2019	2020	2021	2022	2022 Percentage to total
1	ADB	148.9	159.4	370.0	178.2	191.6	246.3	18.2%
2	World Bank	3.5	18.0	37.4	49.4	77.9	187.9	13.9%
3	France	20.2	17.1	106.3	19.9	32.4	172.5	12.8%
4	Japan	62.4	104.4	186.7	259.9	115.7	157.7	11.7%
5	China	182.0	172.3	244.9	232.8	197.9	151.4	11.2%
6	IFAD	52.7	69.3	46.5	56.1	67.5	122.7	9.1%
7	Republic of Korea	20.3	37.2	44.9	36.2	107.2	106.0	7.8%
8	EU/EC	26.1	28.4	39.4	39.0	55.8	69.5	5.1%
9	USA	27.6	67.4	47.5	57.5	64.3	54.5	4.0%
10	Germany	15.0	13.7	9.5	7.0	10.6	17.5	1.3%
11	Australia	40.0	37.0	25.4	18.6	23.3	16.8	1.2%
12	Switzerland	7.3	6.9	7.0	4.0	4.1	9.5	0.7%
13	New Zealand	2.0	2.1	9.8	8.8	8.8	7.7	0.6%
14	UNDP	16.9	25.3	25.5	13.2	4.9	5.8	0.4%
15	WFP	0.2	0.1	2.7	2.6	4.7	5.3	0.4%
16	FAO	3.5	4.6	10.1	8.0	3.0	4.1	0.3%
17	UNIDO	2.3	1.9	3.8	11.5	2.6	2.8	0.2%
18	Czech Republic	0.4	1.3	1.3	0.8	1.0	2.4	0.2%
19	UK	0.5	0.4	0.5	1.2	2.9	2.4	0.2%
20	Sweden	12.6	13.7	17.5	21.1	3.5	1.7	0.1%
21	Canada	1.3	0.4	0.2	0.1	1.3	1.5	0.1%
22	UNICEF	0.0	0.0	0.6	1.1	1.2	1.4	0.1%
23	UN Women	0.0	0.1	1.0	1.0	0.7	1.0	0.1%
24	Global Fund	3.8	2.4	5.1	5.2	4.4	0.9	0.1%
25	WHO	0.1	0.1	0.1	0.8	0.9	0.7	0.1%

Source: CDC, and team expert calculation.

Mitigation expenditure accounts for 4% of the CPER 2022, while adaptation accounts for 96%. This is broadly in line with the government's policy priorities, where adaptation is the main priority,

while mitigation is a smaller but growing component of the climate change response. Mitigation is also significantly funded from the private sector, especially through investments in renewable energy.

**Figure 6: Shares of Adaptation (A) and Mitigation (M) in CPER 2022**



Source: MEF, CDC and Expert team calculation

### III. Assessment of Gender integration in Climate Change Programming

This section assesses to what extent gender has been integrated into climate change programming, based on quantitative data from externally funded projects and more qualitative assessments based on a case study of a project that boosts the use of efficient electric cook appliances, avoiding deforestation and reducing emissions.

#### III.1 Gender in key climate change projects<sup>6</sup>

While data on climate change finance and gender linkages are relatively scarce, this section looks at the evidence available from the CDC's ODA database.

**Table 6: Climate Change finance and gender linkages in CDC's ODA database (in Billions of KHR)**

CDC's CC and Gender spending	2018	2019	2020	2021	2022
Gender tagged projects	1,842	2,584	4,817	2,797	2,948
CC & Gender related spending	1,305	1,974	2,534	1,929	2,057
Weighted CC & Gender spending	372	561	419	431	615

Source: CDC and Expert team calculation

In 2022, the weighted CC and gender spending of the overall external programmes to the total CC expenditure is only 4.1% (or KHR 615 billion). The 39% (or KHR 2,948 billion to total CDC's ODA) of the total overall external finance is tagged as gender relevant, a decline from 41% (or KHR 2,797) in 2021.

On the other hand, only 14% or 2,057 billion KHR of the total climate change relevant programmes were also tagged as having a specific gender focus, an increase of this share from 10% in 2021. The increase in gender programmes share in total climate change expenditure are primarily in health, infrastructure and social protection, reflecting the fact that climate change programmes had a positive trend in 2022 while spending on some other thematic issues (including gender) had a negative trend.

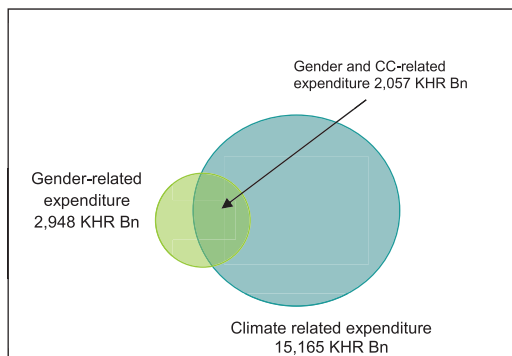
Climate Change is one of the key focus areas for the Neary Rattanak V Gender Strategic Plan (2019-2023). Of the gender-tagged programmes in CDC's ODA database, 70% are also climate change relevant, rising from 69% in 2021. This percentage increase is due to the higher level of total gender related spending

<sup>6</sup> Gender data in the chart is based on the ODA database tag (self-reporting by development partners) and climate change data is based on expert team analysis of the ODA database. Both gender and climate exchange data are unweighted (i.e. expenditure is relevant to CC and gender but not 100% allocated to these objectives).

programmes in 2022, with the absolute amount of expenditures on gender programmes which also climate change relevant slightly increase by 7%.

This indicates that while climate change remains a significant issue from a gender perspective, more efforts need to be made to systematically integrate gender concerns into climate change programmes, especially when these programmes are designed in the context of a global emergency like COVID-19.

**Figure 7: 2022 climate and gender public expenditure (in billions of KHR, from external partners only)**



Source: CDC and Expert team calculation

Based on the NDC/LTS4CN tracking results of 2022, women engagement through the actions implemented was between 10-64% and 62% of the actions under implementation reported the gender related progress made.

It should be noted that Cambodia's updated Nationally Determined Contribution (NDC) includes climate change commitments up to 2030. This updated version of the NDC includes a strong focus on gender, and the gender commitments have been monitored under the NDC transparency framework after the submission of the updated NDC in 2020.

### **III.2 A case of incorporating gender in a project on using efficient electric cook appliances avoiding deforestation and reducing emissions**

**Background:** CCCA supported in 2021 and 2022 a project titled “Scale pilots to accelerate the uptake of efficient electric cooking appliances to mitigate climate impacts through avoided deforestation and reduced emissions”, that provided modern cooking systems to Cambodian households and tested ATEC’s electric cooking appliances<sup>7</sup> through a sales and distribution chain of IDE’s MECS micro enterprise. The project also studied the cooking experience of its customers to assess the benefits from the switch from biomass/LPG stoves to electric stoves.

**Result:** At the end of the pilot project, 268 out of 1,167 household representatives from 42 villages decided to purchase an electric cookstove and use the payment plan provided to cover the cost of the stove. The main reason for choosing these appliances was the time saved, as cooking with an electric stove allows multitasking, and the stoves were found to be safer, as they don’t emit harmful toxic smoke. Of the representatives who purchased the stoves, **195 were female (73%), and 2 were identified as ID-poor customers.**

The use of electric cookstoves can rapidly decrease the amount of wood used in the households and this can reduce emissions contributing to global climate change (the forestry and land use sector is the highest emitter of the GHG emissions in Cambodia). A switch to an electric stove can also reduce women’s

<sup>7</sup> <https://www.atecglobal.io/news/paygo-electromagnetic-induction-stoves>

domestic workload and shorten the time spent on household tasks: this may not change the division of the tasks between women and men in Cambodian households, but it enables women to spend the time saved from cooking to participate in labor market, decision making and education activities. In addition, electric stoves show other benefits such as improved safety and reduced air pollution.

Satisfied customers say that the use of electric cookstoves is easy, safer and healthier than using the traditional stoves, and cooking food is also faster.

**Projection contribution:** the project contributes directly to the implementation of Cambodia's Climate Change Strategic Plan (CCCSP) 2014-23 through addressing Strategic Objective 4 (promoting and facilitating wider-spread adoption of low-carbon technologies) and MAFF's Sectoral Climate Change Strategic Plan which aims to reduce GHG emissions by addressing deforestation and forest degradation. Impacts can be framed through SDGs 7 (affordable clean energy), 11 (sustainable cities and communities), and 13 (climate change).

#### **How does it work?<sup>8</sup>**

The project tackles two of the many barriers to adopting new cooking technologies – financing and technology – while being sensitive to other factors (socio-cultural factors, health, and environmental impacts). Uptake of energy-efficient appliances brings climate mitigation benefits, with health, air quality, and livelihood co-benefits.

The project uses partly a market-based approach to increase awareness and adoption of clean cooking technologies among rural Cambodian households by demonstrating the benefits of clean cooking to the household.

The project tests:

- the uptake of new technology: the magnetic induction stove, which is safer, cheaper, and uses less energy than alternatives, developed by ATEC;
- sophisticated but simple PAYGO financing mechanism (smart meters connected to an app to monitor electricity consumption and pay for the technology in installments via mobile money).

The final area where electromagnetic induction stoves<sup>9</sup> can outperform other cooking solutions is upfront affordability. Electromagnetic induction cooking products traditionally have been unaffordable. For example, a double induction stove costs over US \$200 in Cambodia, which has an average annual income of around \$1,500 per capita, making buying a stove outright unachievable for most people. ATEC believes that the challenge of affordability can be addressed in two main ways.

The first involves PAYGO financing: ATEC's patented eCook stove combines all the benefits of electromagnetic induction cooking with the flexibility of PAYGO purchasing options. PAYGO allows ATEC and its distribution partners to sell eCook stoves on monthly installment plans costing as low as \$5/month. Coupled with running costs that are cheaper than LPG, this makes electromagnetic induction cooking the most affordable solution – even when including the short-term cost of purchasing the stove.

IDE has planned to scale up the pilot project and the focus of the next phase will be on three components to:

1. increase the demand side by using smart subsidy programs,
2. strengthen the supply side by targeting new segments such as grandmothers and unlocking new financing markets, and
3. create a strong and supportive enabling environment for the electric cookstoves market by disseminating knowledge and insights gained, conducting behavioral studies and energy meter data, and having a more diverse pool of funding and alternative business models in order to reduce operational costs.

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<sup>8</sup> <https://nexusfordevelopment.org/blog/accelerating-the-transition-to-clean-cooking-in-cambodia/#:~:text=Since%20July%202021%2C%20International%20Development,mitigate%20climate%20impacts%20through%20avoided>

<sup>9</sup> <https://www.atecglobal.io/news/paygo-electromagnetic-induction-stoves>

### Challenges to accessing modern cooking solutions

- Strong negative perception and fear of LPG, with over 100 fires reported due to LPG explosions,
- Rising cost of LPG and charcoal, forcing household to rely on free wood,
- Low quality and little availability of electric cooking solutions, that can damage the electric cookstove market potential,
- Limited knowledge of the benefits of clean cooking,
- High perceived cost of electric cooking is barrier and financial limitations prevent scaling clean cooking solutions successfully.

### Opportunity for modern cooking in Cambodia

- Cooking with electricity is in nascent stage in Cambodia, but it shows great promise,
- Ease, safety, convenience and aspirational cooking were key motivations for the improving their cooking experience with electricity,
- High national grid coverage at over 90%.

### Lessons learnt

- Out of the 268 household representatives who purchase the e-cook stoves, 195 were female (73%), and 2 were identified as ID-poor customers, reflecting the strong involvement of women in Cambodia in making household decision which is a key in the climate adaptation for household,
- Product affordability by introducing Paygo technology and digital marketing, and addressing household concerns about payment and costs,
- Flexible purchasing options: patented eCook stove combines all the benefits of electromagnetic induction cooking with the flexibility of PAYGO purchasing options, coupled with running costs that are cheaper than LPG, making the cooking solution most affordable and attractive,
- Expanding to a larger customer base for social or start-up enterprises requires a strong financial buffer or financing mechanism to sustain their operations, either through crowdfunding, debt/equity funding from investors, or partner with local peer to peer lending platform,

## IV. Public spending and NDC priorities

Based on the online NDC tracking survey results<sup>10</sup>, a total of 272 million USD was allocated to the implementation of the NDC actions in 2022. The financial resources to implement the actions were received from the government's own budget (USD 178 million) and from UNDP, ADB, JICA, Korea, EU, IRENA, AFD, DFAT, New Zealand, Switzerland, WB, GEF, GIZ, USDA, IFAD, FAO, Japan, GGGI, IAEA, WMO, EDCF, Langcang-Mekong Cooperation Special Fund, China Aid, UK, KFW, UN Women, UNICEF, SNV, WFP, and private sector. New sources of financing, compared to 2021 results, were WFP, SNV, UNICEF, UN Women, GGGI, IAEA and GIZ, amongst others.

The online tracking system allows NDC finance to be identified with the types of climate change responses, either mitigation, adaptation or enabling, by implementing institutions (i.e. by relevant ministries), by national and SNA levels, and by development partners' support. The effort put in updating regularly the tracking system reflects the commitment of the RGC in implementing NDC to tackle climate change.

At a different source, a macro-level alignment assessment of the total public expenditure in 2021 indicates that USD 483.7 million disbursed in 2022 is aligned with the NDC priorities ( see the Annex 4 on NDC's related spending and annual average finance cost). The NDC mitigation actions show a large funding gap, with only USD 96.5 million allocated, a small proportion compared to the USD 387.2 million of the adaptation measures (including enabling actions), due to large contribution from actions on road rehabilitation and maintenance. NDC funding is estimated to average 483.7 USD per year, thus the funding gap for 2022 can be estimated at 38%<sup>11</sup>.

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<sup>10</sup> <https://ncsd.moe.gov.kh/ndc-tracking/>

<sup>11</sup> In Cambodia's updated Nationally Determined Contribution (2020) in section 7, the total funding required for mitigation (USD 5.8 billion) and adaptation (over USD 2 billion) for the ten-year period is over USD 7.8 billion, which is around USD 780 million on average per year.



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## ANNEXES

### Annex 1: Scope of the study and data sources

#### a. Scope of this study

This study updates the information provided in the last published CPER in the following way:

- Includes public expenditure **for fiscal year 2022**;
- Analyses the public expenditure data for the 14 ministries and agencies with an approved Climate Change Action Plan, and for the Ministry of Posts and Telecommunications<sup>12</sup> (MPTC);

#### b. Data sources

This CPER report follows the methodology used in the previous CPER, first identifying expenditures which deliver some degree of climate change benefits, and then weighting these expenditures based on the share of their benefits that contribute to the climate change response. The tools used for this report follow the “[Methodological Guidebook](#): Climate Public Expenditure and Institutional Review (CPEIR)” produced by the UNDP regional programme on the Governance of Climate Finance. The sources of the data are as follows:

- **Recurrent Spending of central government:** Since the 2019 CPER report, CPER analysis uses the actual recurrent expenditure from FMIS. The recurrent spending data was provided by the FMIS Secretariat of MEF. Data obtained for programme budget ministries was broken down to group of activities which are detailed enough to conduct the climate change tagging and assessment. Detailed data on the functional classification of the programme budget ministries’ expenditures is **available for 14 CCAP ministries**.
- **Domestic financed Investment:** The source for “Domestic financed investment” remains actual figures, but since the 2019 report figures from the FMIS have been used. In this regard, more and more comprehensive data can be obtained, especially on the counterpart funding.
- **MEF and CDC loan and grant: External finance** (CDC and MEF loan and grant): data on development partner disbursements was provided by the CDC/CRDB (ODA database) the General Department of International Cooperation and Debt Management. CDC/CRDB data includes all development partners’ loans and grants with data templates designed by CDC/CRDB. MEF data includes actual disbursements from development partners’ loans and grants under MEF management. When data on loan and grant projects came from two sources (CDC/CRDB and MEF), data from MEF is used;
- In the case of loan and grant programmes involving several implementing ministries/agencies, disaggregated information on the share of disbursements channeled to each implementing agency is not always available. In these cases, estimated percentages have been applied for each implementing agency based on the project/program document and past experience. It is assumed that the percentage share is constant for each year over the multi-year life of the project/program.
- Continued analysis on estimated climate change current expenditure of **Sub-National Administration expenditure** from the aggregate level of the actual spending data during the period 2018-2022; and
- Gender qualitative analysis based on CDC/CRDB database;

Analysis of the ODA database relied on the climate change sector and thematic markers (with some limitations as development partners tagging of these markers is improving but not yet systematic), and on additional information available in the database on project objectives and outputs.

The CPER assignment was coordinated by the General Department of International Cooperation and Debt Management of the MEF, with support from the FMIS, the General Department of Budget of the MEF to provide and process data as well as provide inputs for the report. The Information Management

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<sup>12</sup> MLMUPC, MoT and Molnfo were added to the CCFE exercise, and MIME was split in two: MIH and MME. MPTC was included although its CCAP is pending approval.

Department of CDC/CRDB provided the loan and grant data of the ODA database. MEF technical officials have processed the loan and grant data, including tagging for climate change relevance and allocation of disbursements to relevant ministries and agencies.

### c. Typology and Weights

The table below depicts the typology of climate change categories and its weights, based on the cost benefit concepts, and the UNDP's 2015 methodological guidebook on the Climate Public and Institutional Review<sup>13</sup>. The CC weighted item is found by the multiplying the weight to its spending level.

**Table 7: Climate Change public expenditure typology and weights**

Climate Change Categories	Abbreviation	Weights	Descriptions
Renewable energy	RE	20%	renewable projects, including hydropower, solar, bioenergy...
Forestry Management	FM		
• Forestry Management general	FM	10%	general forest management
• Forestry Management, CC direct	FMC	100%	Direct impact to forest under REDD+, carbon credit, GCF
Disaster reduction	DRM	50%	Arrangement or investment made for disaster reduction
Infrastructure (pure CC proofing)	ICP	50%	expenditure with objective to avoid flood, or infrastructure highly resilient to cc, like bridge or road designed for water flow
Disaster response	DRR	100%	Infrastructure maintenance or improvement (mainly) or food assistance after disaster events
Water against drought/flood	WCC	50%	Dam or Dike preventing flood or water reservoir, or investment to keep water resources, secondary objective to cc
Health (climate sensitive diseases)	HCC	10%	Health related to vector born disease, malaria...
Planning for climate change	PCC	100%	Planning or projects for cc, CCCA, GCF...
Irrigation	IRR	25%	irrigation system
Water general	WG	33%	water resource management
Biodiversity and conservation	BC	50%	biodiversity and conservation
Eco-tourism	ECT	5%	Eco-tourism expenditure
Livelihoods target	LVT		
• Livelihoods (CC Proof)	LVTC	100%	livelihoods with climate change sensitive or resilience: ADB climate resilience on rice, and IFAD ASPIRES
• Livelihoods (of CC Venerable)	LVT	50%	livelihoods with vulnerable groups or small group holders, or geographically vulnerable
Livelihoods (general)	LVG	5%	general livelihood
Emissions (secondary objective)	EG	10%	expenditure items support reducing the emission, ICT support, traffic management, rail road, ...
Energy General	ENG	2%	On-grid electricity, transmission lines
Road improvement (incl. CC proofing)	ROC	15%	road improvement or rehabilitation, mainly increase height, or lay with tarmac
Road (no indication of CC proofing)	ROG	5%	road construction in general, mostly dirt road, road in the rural areas
Infrastructure (secondary benefits)	IG	5%	mixed infrastructure road and other, improve transportation and less emission
Water quality (general)	WQG	5%	Clean water supply and sanitation water
Planning (general)	PG	2%	planning general that indirectly support cc
Health (General)	HG	2%	health general that indirectly support cc
Governance (General)	GG	2%	governance support to cc ecosystem

Source: CBR, UNDP's 2005 methodology guidebook on Climate Public and Institutional Review, and Expert team

<sup>13</sup> <https://www.undp.org/asia-pacific/publications/methodological-guidebook-climate-public-expenditure-and-institutional-review-cpeir>

**Annex 2: Unweighted Climate Change expenditure by ministries and agencies (in billions of KHR)**

<b>Development Partners and national (Unweighted)</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
MLUPC	65	70	78	102	36
MoT	9	14	19	55	77
MISTI	348	458	379	921	479
MoInfo	0	0	0	0	0
MPTC	44	40	48	66	67
MAFF	418	429	525	469	619
MME	816	537	1,022	373	418
MoWRAM	1,038	1,215	1,231	1,408	1,452
MPWT	2,571	3,115	3,801	4,115	3,361
MRD	833	1,148	931	982	1,046
MoH	2,059	2,465	1,821	5,658	2,258
MoEYS	5	36	29	97	60
MWA	14	11	9	42	19
NCDM	15	17	4	23	8
MoE	102	145	128	181	106
SNA	607	708	677	725	876
NGO	163	156	157	205	187
<b>Total CC, CCFF ministries</b>	<b>9,106</b>	<b>10,566</b>	<b>10,858</b>	<b>15,423</b>	<b>11,070</b>
<b>Others</b>	<b>919</b>	<b>1,087</b>	<b>2,577</b>	<b>3,570</b>	<b>4,095</b>
<b>Total CC, all ministries</b>	<b>10,025</b>	<b>11,653</b>	<b>13,435</b>	<b>18,993</b>	<b>15,165</b>
<b>in millions of USD</b>	<b>2506</b>	<b>2913</b>	<b>3359</b>	<b>4748</b>	<b>3791</b>

Source: MEF, CDC and team expert calculation.

### Annex 3: Largest Items of Climate Change Expenditure (in Billions of KHR)

No.	Development Partner	Official Title	CC Sector	CC%	Adapt. (a) / Mitig. (m)	2022 (weighted)
1	France	AFD Cambodian Climate Bank	lvtc	100%	a	120
2	World Bank	Cambodia South East Asia Disaster Risk Management - IDA Credit No. 60140	drr	100%	a	112
3	ADB	(48409-002) LN 3661-CAM: Climate-Friendly Agribusiness Value Chains Sector Project	lvtc	100%	a	94
4	IFAD	Sustainable Assets for Agriculture Markets, Business and Trade (SAAMBAT)	lvt	50%	a	49
5	IFAD	Accelerating Inclusive Markets for Smallholders Project (AIMS)	lvtc	100%	a	49
6	ADB	(44321-013) LN 3006-CAM: Climate-Resilient Rice Commercialization Sector Development Program	lvtc	100%	a	42
7	World Bank	CAMBODIA RELIEF, RECOVERY AND RESILIENCE DEVELOPMENT POLICY FINANCING	lvg	5%	a	40
8	China	Design and Construction Project of Phnom Penh Ring Road No.3 (NR.4-NR.1)	roc	15%	a	39
9	China	Water Resource Development of Stung Raksa, Preah Vihear Province	wcc	50%	a	38
10	Republic of Korea	Dauntri Dam Development Project (EDCF)	wcc	50%	a	34
11	Republic of Korea	Climate Resilient Rural Infrastructure Development Project	ICP	50%	a	28
12	Japan	National Road No.5 Improvement Project (Thlea Ma'am - Battambang and SriSophorn - Poipet Section) (I)	roc	15%	a	28
13	Japan	National Road No.5 Improvement Project (Prek Kdam - Thlea Ma'am Section) (II)	roc	15%	a	27
14	ADB	(48409-002) GR 0579-CAM: Climate-Friendly Agribusiness Value Chains Sector Project	lvtc	100%	a	24
15	France	AFD- WAT4CAM Top-up	irr	25%	a	24
16	USA	USAID Greening Prey Lang	fmc	100%	m	20
17	China	Design and Construction of National Road No.71 C Project	ROC	15%	a	19
18	EU/EC	CAPFISH-Capture: budget support component	lvt	50%	a	18
19	ADB	(41435-054) LN 3570-CAM: Tonle Sap Poverty Reduction and Smallholder Development Project - Additional Financing	lvt	50%	a	18
20	China	Prek Tnout Irrigation Development Project in Phnom Penh, Kandal and Takeo Province	irr	25%	a	17
21	China	Construction of National Road from Samlot-Veal Veng-Koh Kong (NR. 1551)	roc	15%	a	17
22	IFAD	Agricultural Services Programme for Innovation, Resilience and Extension (ASPIRE)-Loan Original Fund and Loan Additional Fund	lvtc	100%	a	15
23	Japan	National Road No. 5 Improvement Project (Battambang - Sri Sophorn Section) II	roc	15%	a	15
24	Japan	The Project for Flood Protection and Drainage Improvement in the Phnom Penh Capital City (Phase IV)	drm	50%	a	14
25	ADB	(44321-013) LN 3007-CAM: Climate-Resilient Rice Commercialization Sector Development Program (Project Loan)	lvtc	100%	a	14

No.	Development Partner	Official Title	CC Sector	CC%	Adapt. (a) / Mitig. (m)	2022 (weighted)
26	World Bank	Livelihood Enhancement & Association Of the Poor (LEAP) Project (IDA Credit No. 59600)	lvt	50%	a	13
27	Japan	The National Road No.5 Improvement Project (Thlea Ma am-Battambang and Sri Sophom - Poipet Section) II	ROC	15%	a	12
28	EU/EC	CAPFISH-Aquaculture	lvt	50%	a	12
29	USA	Feed the Future Cambodia Harvest II USAID Cambodia Bilateral program	lvt	50%	a	12
30	Australia	Cambodia-Australia Agricultural Value Chain Program Phase 2 (CAVAC II)	lvt	50%	a	12
31	Japan	Southwest Phnom Penh Irrigation and Drainage Rehabilitation and Improvement Project	irr	25%	a	11
32	Republic of Korea	Daurin Dam Development Project-Supplementary Loan (EDCF)	wcc	50%	a	11
33	China	The Project on the construction of Express Way (Phnom Penh-Sihanouk)	roc	15%	a	11
34	EU/EC	CAPFISH-Capture: UNIDO complementary support	lvt	50%	a	10
35	EU/EC	CAPFISH-Capture: FAO Complementary Support	lvt	50%	a	10
36	Republic of Korea	National Road No.2 and National Road No.22 Improvement Project	roc	15%	a	10
37	World Bank	Land Allocation for Social and Economic Development Project (LASED II) funded by IDA Credit No. 58070	lvt	50%	a	9
38	USA	Commercialization of Aquaculture for Sustainable Trade (CAST) - USDA Vietnam Program	lvt	50%	a	8
39	Japan	The Project for Inclusive Renewable Energy Access in Rural Areas	pcc	100%	m	7
40	Japan	The National Road No.5 Improvement Project (Prek Kdam-Thlea Ma am Section) (III)	roc	15%	a	7
41	ADB	(41123-015) LN 3576-CAM: Road Network Improvement Project	roc	15%	a	6
42	ADB	(49387-002) LN 3701 Second Greater Mekong Subregion Tourism Infrastructure for Inclusive Growth Project	roc	15%	a	6
43	Germany	Strengthening the resilience of poor population groups under climate change in selected ASEAN countries, under special consideration of COVID-19 effects	pcc	100%	a	6
44	China	National Road No.3 Construction Project (From Chom Chao - Bek Kus - Kampot)	roc	15%	a	6
45	EU/EC	Cambodia Climate Change Alliance (CCCA) phase 3	pcc	100%	a	6
46	France	AFD- Rural Infrastructure Development Program for Cambodia RID4CAM	roc	15%	a	6
47	ADB	(42285-013) LN 8295-CAM(STCF) Integrated Urban Environmental Management in the Tonle Sap Basin Project	bc	50%	a	5
48	ADB	(44328-013) LN 3289-CAM: Uplands Irrigation and Water Resources Management Sector Project	wcc	50%	a	5
49	ADB	(42334-018) LN 3678-CAM: Rural Road Improvement Project III	roc	15%	a	5
50	EU/EC	Water Resources Management & Agro-ecological Transition for Cambodia - WAT4CAM	wcc	50%	a	5

Source: MEF, CDC and team expert calculation.

## Annex 4: NDC's related spending and annual average finance cost (in millions of USD)

No	Action	Ministry	No of Action M and A	in Millions of USD	
				Related Spending 2022	Annual Finance cost
1	Urban planning tools for climate change mitigation and the urban planning solution in three sub city	MLMUPC	M1	0	2.75
2	Improvement of process performance of EE by establishment of energy management in buildings/industries	MME	M2	0	5
3	Efficiency energy and pollution management in latex and rubber wood processing	MAFF	M3	0	0.1158
4	New sanitary landfills with LFG extraction and LFG extraction at the Dangkor Landfill. Potential for private sector engagement in financing, constructing, and operating sanitary landfill and LFG systems	MoE	M4	0	145.2
5	Composting of biodegradable organic fraction of MSW supplemented with separation of organic waste (at source). Can be done at different stages in the waste management value chain, either at household, community level or at landfill site. Private sector can invest in and operate the composting facilities	MoE	M5	0.35	Conditional action
6	Production of Refuse-Derived Fuel (RDF ) from either a) fresh MSW or b) old MSW mined from the Dangkor landfill. The mechanical and biological separation and treatment of waste will be combined with an anaerobic digestion plant (generation of biogas from organic waste) to power facilities at the landfill. The produced RDF can be sold to e.g. cement industry as fuel. Private sector can invest in and manage the RDF and anaerobic digestion plant	MoE	M6	0.02	1.688
7	Implementation of National 3R strategy	MoE	M7	0	Variable cost
8	Bio-digesters construction (85% reduction compared to 2000)(Small size (2-3-4m3), Medium size(6-8-10m3), Large size>10m3)	MAFF	M8	0	1.275
9	Centralized recycling facility for industrial waste from the garment sector	MISTI	M9	0	Variable cost
10	Better management of industrial wastewater in the food & beverage sector	MISTI	M10	0	Variable cost
11	Application of electrical equipment labelling & MEPS (Lighting, Cooling & Equipment)	MME	M11	0	25
12	Public awareness campaigns	MME	M12	0	2
13	Building codes and enforcement/certification for new buildings and those undergoing major renovation	MME	M13	0	2.5
14	Introduction of efficient electrical industrial motors and transformer	MME	M14	0	1.6
15	Improve sustainability of charcoal production through enforcement of regulations	MME	M15	0	1
16	Increase energy access to rural area	MME	M16	86.57	4
17	Roadmap study on Integration of renewable energy resources (solar, wind, hydro, biomass) into energy mix	MME	M17	0	0.03
18	Diversification of household and community energy generation sources to reduce reliance on biomass as an energy source	MME	M18	0	NA
19	Reducing GHG emission through off grid street lightening of rural municipality	NCDD	M19	0	1
20	Toward Battambang city to green city	NCDD	M20	0	0.8
21	Eco-payment based on changing behavior on fire wood use of community in Angkor and Kulen Conservation Park	NCDD	M21	0	0.7
22	Cooling of public sector buildings	NCDD	M22	0	6.7
23	Promote sustainable energy practices in manufacturing	MISTI	M23	0.03	Variable cost

24	Actions to promote sustainable sourcing of fuel wood in the garment industry	MISTI	M24	0	1.959025
25	Implementation of National Cooling Action Plan - Direct emission reduction due F-gas transition in air-conditioning and refrigeration - Indirect emission reduction due to improved cooling efficiency - Additionally, Inclusion of performance requirements of Passive Cooling Systems in Building Energy Code and implementation of “passive cooling” measures in the cities can be carried out as part of the implementation of the NCAP – see below	MLMUPC	M25	0	5
26	Inclusion of performance requirements of passive cooling systems in building energy code of Cambodia	MLMUPC	M26	0	0.075
27	Implementation of “passive cooling” measures in the cities (addressing urban heat island effect [UHIE]), public buildings and commercial buildings.	MLMUPC	M27	0	4.9
28	Promote integrated public transport systems in main cities	MPWT	M28	0.61	NA
29	Enhance maintenance and inspection of vehicle (Piloting maintenance and emission inspections of vehicles)	MPWT	M29	0	Variable cost
30	E-mobility	MPWT	M30	0.02	NA
31	Establish green belts along major roads for climate change mitigation	MPWT	M31	0.09	NA
32	Shift long distance freight movement from trucks to train	MPWT	M32	0	NA
33	Increasing the effectiveness and sustainability of agricultural land management techniques (Conservation Agriculture)	MAFF	M33	0	2.4963
34	Organic input agriculture and bio-slurry; and deep placement fertilizer technology	MAFF	M34	0	0.26
35	Promote fodder production to improve high nutrient rich and high-quality forage feed value agriculture byproducts technology to support cattle production	MAFF	M35	0	0.0625
36	Promote manure Management through compost making process to reduce carbon emission	MAFF	M36	0	2.125
37	Seedlings distribute to public and local community	MAFF	M37	0.03	Variable cost
38	REDD+	MAFF	M38	7.59	NA
39	1. Promoting one tourist, one tree campaign	MoT	M39	0	0.2
40	2. Practicing responsible travel manner in order to protect and conserve environment, biodiversity, culture and local livelihood improvement	MoT	M40	0.02	NA
41	3. Always remind and practice 3R in all tourists’ activities	MoT	M41	0	NA
42	4. Reducing energy use, improving energy efficiency, increasing the use of renewable energy, carbon offsetting, waste management and recycling, and water conservation	MoT	M42	0.32	NA
43	5. Operating sustainable destination management		M43	0	NA
44	6. Promoting adventure and green tourism activities		M44	0.02	NA
45	Installing air quality monitoring equipment in all provinces across the countries and establishing air quality data monitoring center with mobile application for public information and access	MoE	M45	0.82	NA



46	Establishing air quality monitoring and broadcasting center	MoE	M46	0	Variable cost
47	Improving urban environmental management through increasing green spaces in the city	MoE	M47	0.01	NA
48	Emission management from factories	MoE	M48	0	NA
49	Air quality management from construction sites	MoE	M49	0	0.05
50	Development of a long-term low emission strategy	NCSD	M50	0	NA
	<b>Subtotal Mitigation Action</b>			<b>96.5</b>	<b>218.5 + Other programmes' conditional cost = USD 0.58 Billion</b>
1	Towards an agroecological transition in the uplands of Battambang	NCDD	A1	0	1
2	(Program 1: Improvement of Agricultural Productivity and Diversification and Agri-Business) Development of rice crops for increase production, improved quality safety; harvesting and post harvesting technique and agrobusiness enhancement	MAFF	A2	26.30	3.7122
3	Development of horticulture and other food crops for increase production, improved quality safety; harvesting and post harvesting technique and agrobusiness enhancement	MAFF	A3	1.38	1.5238
4	Development of Industry crops for increase in production, improved quality safety; harvesting and post harvesting technique and agrobusiness enhancement	MAFF	A4	0.03	1.2506
5	Improvement of support services and capacity building to crop production resilient to climate change by promoting research, trials and up-scaling climate smart farming systems that increase resilience to CC and extreme weather events	MAFF	A5	0.13	6.9562
6	Building climate change resilience on cassava production and processing	MAFF	A6	0	0.289
7	Research for the development and enhancement of agricultural productivity, quality, and transfer through strengthening of crop variety conservation and new crop variety release responding to the impacts of climate change	MAFF	A7	0.26	0.2
8	Development of new technologies and increased yields by using new crop varieties which adapt to climate change	MAFF	A8	0	0.15
9	Development of rubber clone varieties suitable for AEZ and resilient to climate change	MAFF	A9	0.11	0.92486
10	Enhancing institutional and capacity development on climate change impact, vulnerability assessment, adaption measures and mitigation related to rubber sector	MAFF	A10	0.00	0.3852
11	(Program 2: Promote animal production and animal health) Improvement of animal breeding technology in Cambodia through AI which can adapt to climate change	MAFF	A11	0	1.25
12	Promotion of research capacities on animal genetic, animal breeding, and animal feed is strengthened to adapt to climate change	MAFF	A12	0.06	5

13	Strengthening capacities for risk prevention and reduction, effective emergency preparedness and response at all levels; enhancing livestock and disease-related early warning system, and integrating disaster risk reduction and climate change adaptation measures into recovery and rehabilitation initiatives in the livestock sector	MAFF	A13	0.11	0.625
14	(Program 3: Fishery management and aquaculture development ) Promoting aquaculture production systems and practices that are more adaptive to climate change	MAFF	A14	7.03	1.56
15	Promoting climate resilience in the fisheries sector	MAFF	A15	8.88	3.35
16	Scaled up climate resilient agricultural production through increased access to solar irrigation systems and other climate-resilient practices	NCSD	A16	0.01	1
17	Developing a training manual and providing training on approaches for development of climate-smart and sustainable livelihood to rural poor people	MRD	A17	0.06	1
18	Protection, risk mitigation, and resilience building from marine pollution particularly caused by activities on land including marine pollution from waste and aquaculture activities.	MoE	A18	0.03	0.2
19	Effective management and protection of ecological systems of marine and coastal zones to avoid adverse impacts from various factors, build their resilience and restore its functions for productive and healthy oceans	MoE	A19	0	7
20	Upgrading curriculum and training methodologies, including libraries, to include climate change subjects for primary schools	MEYS	A20	0	0.2
21	Upgrading curriculum to include climate change for nonformal education	MEYS	A21	0	0.095
22	Build centers of excellence for delivering climate change courses and research among Universities	MEYS	A22	0	0.325
23	Conduct training for education officials on climate change e.g. as a required component of teacher training	MEYS	A23	0	0.09
24	Conduct climate risk analysis for the existing electricity infrastructures and provide recommendations	MME	A24	0	0.0322
25	Climate proofing of existing and future solar/hydropower infrastructure	MME	A25	0	NA
26	Strengthen institutional capacities at national and sub-national levels to integrate gender responsiveness in climate change adaptation's policies, plans, programming, including gender budgeting	MoWA	A26	0.68	0.05
27	Enhance coordination and implementing accountability mechanisms to reduce climate change vulnerabilities of disadvantaged women and other marginalized groups such as ethnic minority women and men, People with Disability (PWD), youth, and elderly	MoWA	A27	0.84	0.05
28	Enhance monitoring and evaluation systems of sectoral ministries to track gender outcomes in climate change initiatives with particular focus on collecting and managing sex disaggregated data, gender indicators and budgeting, outcome-based reporting, and dissemination and up-scaling of the gender and climate change adaptation related knowledge generated.	MoWA	A28	0	0.02
29	Capacity development for GCCC members and sectoral ministries on gender analysis, gender responsive and NDC	MoWA	A29	0	0.04
30	Develop a technical guideline for gender mainstreaming in NDC process	MoWA	A30	0.01	0.012
31	Market supply chain of rural women entrepreneurs resilient to climate change	NCDD	A31	0.11	0.8
32	Local government and Climate Change-III (LGCC3)	NCDD	A32	0	1.3185

33	Reducing vulnerability of local communities through sub-national climate governance reform (focusing on policy)	NCDD	A33	0	1
34	Enable effective decision-making for health interventions through generation of information and improved surveillance or early-warning systems	MoH	A34	0	0.0113519
35	Enhance climate resilience in health service delivery	MoH	A35	2.18	0.0246758
36	Strengthen and provide capacity building of technical guidelines for diagnosis, detection, control, prevention and treatment of vector-borne and water-borne diseases, injuries and other food poisoning illnesses arising from climate change	MoH	A36	0.05	NA
37	Conduct water sanitation and hygiene (WASH) assessment on climate change and develop planning for communities and health facilities.	MoH	A37	0.64	NA
38	Strengthen institutional capacities to effectively integrate climate risks and adaptation options in health sector planning and implementation	MoH	A38	0.05	0.0107408
39	Heat stress adaptation for industrial production	MISTI	A39	0	Variable cost
40	Enhance the quality of broadcasting means and expand the capacity of coverages for raising awareness on climate change nationwide	MoINFO	A40	0	0.5
41	Training and enhancing human capacity on climate change in information sector	MoINFO	A41	0	0.075
42	Urge private media organizations to participate in covering/broadcasting the climate change topics and to complement the state broadcasting agencies.	MoINFO	A42	0	0.125
43	Urge and encourage to reduce (or ban) all forms of commercial advertisement that has negative impact on environment	MoINFO	A43	0	0.05
44	Integrating climate change response measures onto the construction design for buildings and for rural housing (use of modern integration of technology)	MLMUPC	A44	0	0.34
45	Develop resilient infrastructure of school buildings in response to climate change	MEYS	A45	0	0.195
46	Implement climate change and disaster resilient construction and infrastructure standards including for public sector and community-focused buildings covering public health, education, WASH etc.	NCDM	A46	0	0.04
47	(DLUP) Prepare spatial planning (city/district/municipality) guidelines at all levels for climate change adaptation (CLUP) Integrating climate change response measures to the commune land use planning	MLMUPC	A47	0	0.0586
48	Integrating climate change response measures to the policy of social land concession (SLC) and its procedures	MLMUPC	A48	0.68	0.186
49	Prepare modality of standardized green spaces for urban planning or new sub-cities to address vulnerability of urbanization.	MLMUPC	A49	0.00	0.786
50	Vulnerability Assessment towards the development of climate change strategic plans to respond to the impacts on land, housings, coastal management, and building due to climate change	MLMUPC	A50	0.05	0.256
51	Promote land use planning tools for urban houses and building construction adaptive to climate change benefits to the low-income and homeless people	MLMUPC	A51	0	0.256
52	Promote proper low cost shelters for low income households resilient to climate change, practically in the area of social land concession	MLMUPC	A52	0	3.256
53	Development of building code with mainstreaming climate change into building designs	MLMUPC	A53	0	0.656

54	Mainstream climate change response measures into coastal development planning against sea water intrusion, sea water rise and seasonal storm destruction, and rising temperature	MLMUPC	A54	0.07	Variable cost
55	Strengthening climate resilient city	NCDD	A55	0.03	1
56	Develop national road construction and maintenance design standards for national and provincial roads, considering climate change impact including M&E framework develop for climate proofing and low-carbon technology roads	MPWT	A56	0.05	0.05
57	Repair and rehabilitate existing road infrastructure and ensure effective operation and maintenance systems, considering climate change impact	MPWT	A57	64.84	1
58	Rural road rehabilitation and improvement for climate change resilience	MRD	A58	27.89	80
59	News coverage and program production for awareness raising on climate change and its impacts	MoINFO	A59	0.00	0.3
60	Develop and annually update national and subnational multihazard and climate risk assessments, including identification of most vulnerable communities.	NCDM	A60	1.10	0.15
61	National end-to-end early warning systems with focus on effective dissemination to populations at risk	NCDM	A61	0	1.5
62	Implement community-based disaster and climate risk management programs	NCDM	A62	0.99	0.6
63	Building resilience of biodiversity conservation and restoration to adapt to climate change	MoE	A63	2.24	0.1125
64	Integrated village development	MRD	A64	0.28	20
65	Strengthen flood resiliency capacity of communities around Tonle Sap (access to clean water, off grid renewable energy, and waste management)	NCDD	A65	0	1
66	Building climate resilient livelihood and public infrastructures in social land concession for vulnerable communities	NCDD	A66	0	1.45
67	Building climate resilience for district and commune governance through policy and strategic development plan reform (focus on implementation)	NCDD	A67	0	1
68	Mainstreaming climate change into Education Strategic Plan 2019-2023 Strategic Plan and SDG4 Roadmap for Education 2030	MEYS	A68	0	0.08
69	Strengthen the cooperation with local and International development agencies, NGOs and relevant institutions for technical and financial support to implement the adaptation planning in media sector	MoINFO	A69	0	0.01
70	Development of climate change national/capital/provincial development plans including an M&E system with specific indicators	MoP	A70	0	0.5
71	Development of a climate change public investment program for the national/capital/provincial levels	MoP	A71	0.06	0.3
72	Building adaptive and resilient capacity for MRD officers at national and sub-national level for mainstreaming climate change into rural development planning processes and technical design.	MRD	A72	0	1
73	Build adaptive capacity on climate change for village leaders (Village Development Committees, VDCs)	MRD	A73	0	1
74	Strengthen resilience and adaptation capacity to climate change in the most vulnerable provinces/districts/communes (produce vulnerability index maps at the commune level, integrate climate change into investment and development plans, demonstrate the identified actions at pilot sites)	NCSD	A74	0	1
75	Update and implement the Cambodia Climate Change Strategic Plan (CCCSP) for 2024-2033	NCSD	A75	0	0.5
76	Integrate climate change measures into national policies, strategies and sectoral strategies and plans	NCSD	A76	5.59	0.5

77	Enhance institutional capacity on climate change (mitigation, adaptation, policy, strategies, planning, and finance) through awareness raising, training, and advocacy	NCSD	A77	0.09	0.2
78	Provide capacity building and supports for Climate Change Innovation at the provincial along Tonle Sap River	MoT	A78	0.01	Variable cost
79	Raising public awareness on climate change innovation at all levels	MoT	A79	0.00	NA
80	Practicing smart agriculture in tourism sector	MoT	A80	0	NA
81	Establish an automated nationwide hydromet. monitoring network and data transmission program, including collection of climate and hydrological data	MoWRAM	A81	21.79	4.79
82	Establish a centralized and standardized approach to climate resilient water management	MoWRAM	A82	70.26	4.96
83	Establish a national climate and food warning system, including a service center and flood emergency response plans	MoWRAM	A83	0.74	0.88
84	Integrated groundwater management in Cambodia	NCDD	A84	0	1
85	Establish nationally standardized best practice systems for irrigation	MoWRAM	A85	138.20	0.24989
86	Resilient and adaptive rural water supply and sanitation construction	MRD	A86	3.32	35
	Subtotal Adaptation Action			<b>387.2</b>	208.4 + Other Cost = USD 0.2 Billion
	Total			<b>483.7</b>	426.9 + Other cost = USD 0.78 billion

Source: MEF, CDC and team expert calculation.

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