CLIMATE PUBLIC EXPENDITURE AND INVESTMENT REVIEW OF VIET NAM

March 2022

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Glossary

AF	Adaptation Fund
AFD	Agence Française de Développement (French Development Agency)
AP	Action Plan
APRF	Adaptation Prioritization Framework
ASBR	Annual State Budget Report
AusAid	Australian Agency for International Development
BAU	Business As Usual
CBDRM	Community-based Disaster Risk Management
CCA	Climate Change Adaptation
CCFSC	Central Committee for Flood and Storm Control
CCWG	Climate Change Working Group
CDM	Clean Development Mechanism
CIDA	Canadian International Development Agency
CIFs	Climate Investment Funds
COP	Conference of Parties
CPEIR	Climate Public Expenditure and Investment Review
CPV	Communist Party of Viet Nam
DARD	Department of Agriculture and Rural Development
DCC	Department for Climate Change
DP	Development Partner
DSENRE	Department of Science, Education, Natural Resources and Environment
EIA	Environmental Impact Assessment
EREA	Electricity and Renewable Energy Agency (MOIT)
EU	European Union
EVN	Electricity Viet Nam
GCF	Green Climate Fund
GCM	global circulation model
GCRI	Global Climate Risk Index
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFSM	Government Finance Statistics Manual (IMF)
GGAP	Green Growth Action Plan
GHG	Greenhouse gas
GoV	Government of Viet Nam
HCMC	Ho Chi Minh City
INDC	Intended Nationally Determined Contribution
IP	Industrial Processes
IPCC	Intergovernmental Panel on Climate Change
JICA	Japan International Cooperation Agency
LULUCF	Land use, land-use change and forestry
MARD	Ministry of Agriculture and Rural Development
M&E	Monitoring and Evaluation
MOC	Ministry of Construction
MOCST	Ministry of Culture, Sports and Tourism
MOD	Ministry of Defence
MOF	Ministry of Finance

MOH	Ministry of Health
MOIT	Ministry of Industry and Trade
MOLISA	Ministry of Labour, Invalids and Social Affairs
MONRE	Ministry of Natural Resources and Environment
MOST	Ministry of Science & Technology
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
MPS	Ministry of Public Security
MRV	Monitoring, Reporting and Verification
MtCO2e	million tonne of carbon dioxide equivalent
MTEF	Medium-Term Expenditure Framework
MTFF	Medium-Term Fiscal Framework
MTPIP	Medium-Term Public Investment Plan
NA	National Assembly
NCCC	National Committee on Climate Change
NCCS	National Climate Change Strategy
NDC	Nationally Determined Contribution
NGO	Non-governmental organization
NTP	National Target Program
NTP-RCC	National Target Program to Respond to Climate Change
ODA	Official development assistance
PC	People's Committee
PIPA	Plan for Implementation of the Paris Agreement
PM	Prime Minister
RE	Renewable energy
REDD	Reducing Emissions from Deforestation and Forest Degradation
SEDP	Socio-Economic Development Plan
SEDS	Socio-Economic Development Strategy
SMEs	Small and medium enterprises
SPRCC	Support Programme to Respond to Climate Change
SR Viet Nam	Socialist Republic of Viet Nam
TABMIS	Treasury and Budget Management Information System
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VBF	Viet Nam Business Forum
VCCI	Viet Nam Chamber of Commerce & Industry
VEPF	Viet Nam Environmental Protection Fund
VEPG	Viet Nam Energy Partnership Group
VGGS	Viet Nam Green Growth Strategy
VNEEP	Viet Nam Energy Efficiency Programme
WB	World Bank

Preface

Viet Nam has been experiencing profound impacts wrought by climate change and climate-induced disasters, underscoring the need for urgent actions to protect hard-won development gains, build forward better from COVID-19, and achieve high middle-income status in a way that is sustainable and leaves no one behind. Key economic sectors, including agriculture and fisheries are at risk and vulnerable groups are heavily impacted. At the same time, Viet Nam's rapid economic growth is carbon intense, and challenges to limit greenhouse gas emissions are increasing with every fossil fuel intensive investment.

The Government of Viet Nam fully recognizes the threats of climate change as well as the significant development benefits associated with the implementation of climate change adaptation and mitigation. The Government has adopted and continues to promulgate strategic policies and plans to advance climate change actions, which include Law on Environmental Protection 2020, Green Growth Strategy 2021-2030, and finalizing a new Climate Change Strategy, 2021-2030. At COP26 in Glasgow, Prime Minister Pham Minh Chinh made an ambitious and highly commendable commitments that include setting the national target of net-zero emissions by 2050, joining the global pledge to cut emissions of the powerful greenhouse gas methane by 30 per cent by 2030, and pledging to halt and reverse forest loss and land degradation by 2030. The Prime Minister has recently established a new National Steering Committee for the implementation of Viet Nam's Commitment at COP26.

Critical to delivering on these commitments is developing and translating plans into budgets for action. To understand better how the government's budgets and expenditures have been targeted for addressing Climate Change and its impacts, the Ministry of Planning and Investment undertook the first Climate Public Expenditure and Investment Review (CPEIR) for the period 2011-2014, with support from the United Nations Development Programme (UNDP) and the World Bank. Building on the 1st CPEIR, we are very pleased to introduce an updated CPEIR for the period 2016-2020, with participation and contribution of more ministries and provinces has been successfully completed by MPI and UNDP.

This updated CPEIR provides a review of climate change expenditures and budgets of 6 ministries, 28 provinces and a centrally managed city. It covers the period 2016-2020 with some additional analysis from the previous CPEIR. Importantly, it makes recommendations on strengthening climate change planning and budgeting at all levels. It also recommends a climate change expenditure tracking of national and provincial/city budgets, to develop more effective climate change responsiveness of public finance management and inform climate change policy and implementation. The report can also contribute to mobilizing and diversifying funding for climate change action, which is important as resources to address climate change and promote green growth actions are scarce.

It is our intention that this review contributes to policy formulation, planning and budgeting to further build Viet Nam's resilience to the impacts of climate change and to help accelerate actions for a low carbon economy as Viet Nam continues to chart its pathway toward a green recovery and a more prosperous, inclusive future.

Ministry of Planning and Investment
Vice Minister

Nguyen Thi Bich Ngoc

United Nations Development Programme
Resident Representative

Caitlin Wiesen

Executive summary

Introduction

This CPEIR report aims to provide a detailed review of domestic and Official Development Assistance (ODA) climate change budget allocation in order to establish climate change budgeting as a key component of planning, budgeting and allocation. The report considers policy and institutional arrangements, devises climate change budgets. It also makes recommendations on enhancement of climate change planning and budgeting for the Ministry of Planning and Investment (MPI) as well as other ministries and provinces involved in financing and managing the climate change responses.

The CPEIR information can be used to strengthen the climate change responsiveness of the public finance management system, promote a shift from input-based to output-based budgeting and facilitate further climate-related interventions through provinces and line ministries. In addition, it could contribute to mobilization and diversification of domestic and international funding sources to address climate change.

Review of policy and institutional arrangements

A review of the policy and institutional arrangements for climate change in Viet Nam was undertaken. It demonstrates that Viet Nam has responded strongly to the challenges of climate change with national, sector and sub-national policies and programs which are coordinated by the National Climate Change Committee (NCCC). Furthermore, the climate change and green growth policies and action plans have addressed the main issues in the period to 2020. They demonstrate substantial mainstreaming of climate change responses in sector and provincial policies, plans and programmes.

Organizational strengthening to support the NCCC task of oversight and coordination of climate change responses is ongoing, with international support, in particular to enhance monitoring and evaluation (M&E) and monitoring, reporting and verification (MRV) capacity.

Climate change adaptation and mitigation responses can be improved, and co-benefits can be achieved as per the updated National Determined Contribution (NDC) for the period 2021-2030, whereas analysis shows that further ambition to reduce GHG emissions is possible.

For domestic budget allocation, a structured and organised annual cycle is used, which is based on the five-year Socio-economic Development Plan (SEDP) and ten-year Socio-economic Development Strategy (SEDS). For provincial annual investment budgets, certain priority projects are selected from the pool of project concepts approved by Provincial People's Council (which together represent the provincial Medium-Term Public Investment Plan, P-MTPIP), and following a feasibility and appraisal phase some of these projects are funded and implemented; this route is important for climate change investments.

Budget analysis methodology

For this CPEIR, the methodology builds on the approached applied in the first Vietnamese CPEIR published in 2015. The climate budget approach as outline by MPI in 2018 could not be used in this study as level of project information required to undertake the coding was too detailed.

The scope of the CPEIR covers public investment projects (investment expenditures) over the period 2016 – 2020 related to climate change. The analysis covers about half the provinces and centrally

administered cities in Viet Nam: 28 provinces and 1 city out of a national total of 58 provinces and 5 cities (labelled 29 provinces in the rest of this text). The climate change response analysis also covers 6 ministries: Ministry of Agriculture and Rural Development (MARD), Ministry of Natural Resources and Environment (MONRE), Ministry of Transport (MOT), Ministry of Industry and Trade (MOIT), Ministry of Construction (MOC), and Ministry of Science and Technology (MOST).

However, additional information was available from the previous CPEIR for 5 ministries and 3 provinces. Thus, for 3 provinces of (An Giang, Bac Ninh and Quang Nam) and 5 ministries (MARD, MOT, MONRE, MOC and MOIT) data used in the analysis increased to 11 years (from 2010 -2020) and included both investment and recurrent expenditures (depending on data availability provided by individual ministry).

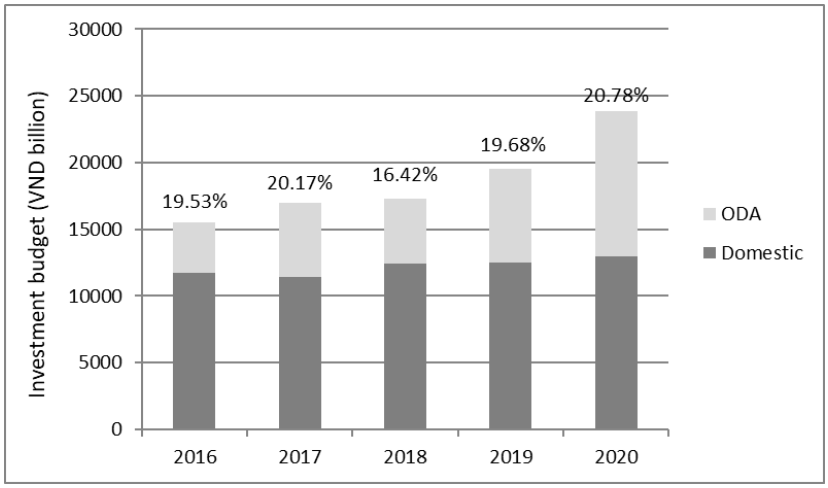
A 4-step process was used to assess budget data in relation to climate change: (1) Identification of budget lines related to climate change; (2) Classifying climate change related expenditures by climate change Task using the typology designed during the CPEIR of 2015; (3) Categorising the type of the climate change related expenditure (adaptation, mitigation, or both); (4) Defining the proportion of the expenditure related to climate change based on pre-determined categories.

In addition to budget data, climate related policies and action plans in the ministries and provinces were analysed. The climate change policies included: the National Target Program to Respond to Climate Change (NTP-RCC); the National Climate Change Strategy (NCCS) and National Climate Change Action Plan (CCAP) as well as sectoral and provincial climate change action plans; the Viet Nam Green Growth Strategy (VGGS) and Green Growth Action Plan (GGAP) and sectoral and provincial action plans; and the Plan for Implementation of the Paris Agreement (PIPA) and provincial PIPA action plans.

Provincial climate change budgets

The climate change budget of each of the 29 provinces was determined (Annex 2 and Annex 3). There was considerable diversity in the provincial folios and in particular the scale of the climate change investment budget in relation to the overall provincial investment budget varied from 2% to 59%.

Combining the climate budget data from the 29 provinces showed that the average climate budget over the studied period was about VND 18,000 billion. However, the climate budget increased from about VND 15,000 billion in 2016 to almost VND 24,000 billion in 2020 (see figure below). The domestic budget allocation was stable, but ODA tended to increase and cause the increase in climate budget. The climate change budget represented a relatively stable proportion of the total provincial budget, varying between 16 – 21% of the total budget.



The climate investment budget for the 29 provinces combined from 2016 to 2020 broken down into ODA and domestic sources (figures in brackets on top of bars are the % of the total provincial investment budget represented by the climate investment budget).

Adaptation was the dominant expenditure, representing over 90% of the climate budget in all years. Adaptation is a high priority for Viet Nam's public expenditure, whereas mitigation expenditure such as renewable energy generation is mainly private sector expenditure. Mixed adaptation and mitigation investment made up much of the remainder of the climate budget, but the contribution was always <10%. Over 50% of the climate change delivery (CCD) was focussed at four Tasks (as defined in the methodology): Transport, Residential and City Area Resilience, Irrigation, and River Dyke and Embankments. These four Tasks are mainly infrastructure-related and thus interventions are relatively expensive.

Inter-annual volatility of the climate change budget was higher than the overall provincial budget. This volatility was caused mainly by fluctuations in ODA flows relating to the starting or ending of large projects which significantly increased the annual climate budget, sometimes coupled with disbursements related to the P-MTIP cycles. Commencement of some large investments was stated to be a response to climate change related impacts such as flooding and drought.

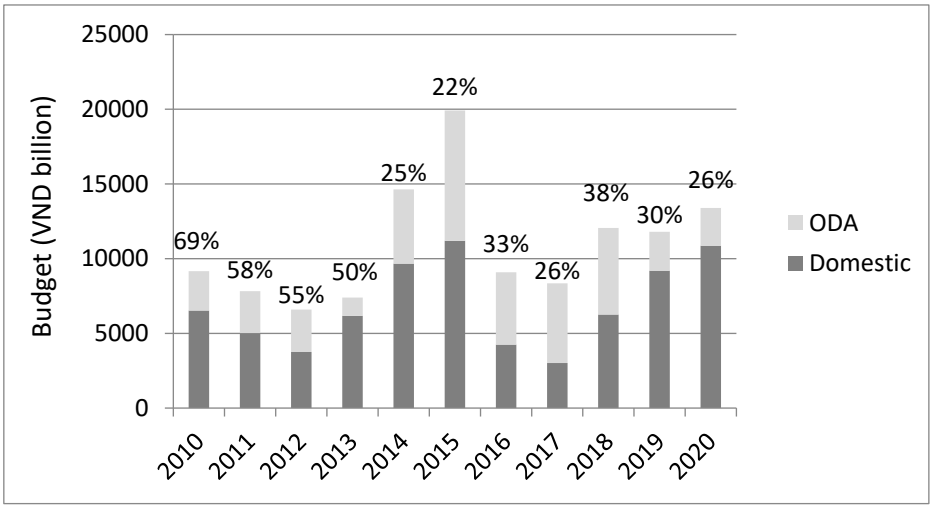
Analysis of longer-term climate change budget trends (2010 – 2020) in three provinces demonstrated a general increase in the climate change related budget over this period suggesting that the climate agenda in increasingly inculcated in planning and decision making. The dominance of domestic investment sources over ODA was maintained and there was consistent focus on adaptation. Over the long term there is evidence of differential targeting between provinces in climate expenditures which is related to the local context and needs of their province. This suggests that provincial policy and budgeting are producing outcomes which advance local climate change priorities.

Ministry climate change budgets

The climate change budget of the 6 ministries combined appears to be relatively stable from 2016 – 2020, between 8,000 – 13,500 billion VND, and representing between 26 and 38% of the combined total ministry budget (see figure below). Over 90% of the climate change budget from 2016 – 2020 was targeted at the Climate Change Delivery pillar; the small remainder was from Science, Society and Technology (ST) and Policy and Governance (PG). The climate change budget was mainly focussed on adaptation. The 2019 and 2020 climate change budget was composed of approximately 75% adaptation (over 10,000 billion VND) and then the remainder was an equal division between

mitigation and a mix of adaptation and mitigation. The focus of the budget on adaptation measures is aligned to national policies. Mitigation is of national importance, but investments are mainly in the private sector, so this study under-represents national mitigation flows.

MARD and MOT dominate the climate change budget with combined more than 8,000 billion VND per annum expenditures from 2016-2020, representing over 80% of the total climate change budget. MARD and MOT projects are directed predominantly at two Climate Change Delivery Tasks: Irrigation (CCD1.3) and Transport (CCD2.3), respectively. Both these Tasks are relatively expensive as they involve infrastructure works.



The climate change related budget (VND billion) of the 6 selected ministries divided into ODA and domestic sources for 2010 to 2020. The figures on top of the bars are the percentage that the climate change budget represents of the combined total ministry budgets. Data prior to 2016 was taken from the CPEIR of 2015 and is indicative only, due to data constraints in those years.

The other ministries have more diverse expenditures, especially MONRE, covering adaptation, mitigation and mixed adaptation and mitigation and across a range of tasks in Climate Change Delivery, Science, Society and Technology (ST) and Policy and Governance (PG). The diversity of climate related Tasks undertaken by the ministries reflects the broad array of climate intervention identified in policy required for the national response.

Allocation of climate change budgets to policies

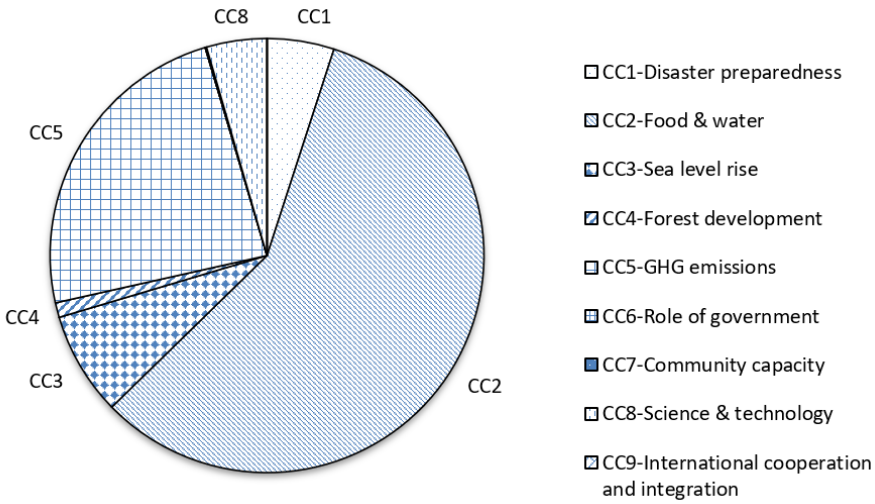
The linkage was assessed between the climate-related investment budgets and the main climate change-related policies. At a national level the analysed policies were NCCS, GGS and PIPA. Budget allocations were linked to the policy objectives which were termed “strategic actions” (NCCS), “solutions” (VGGS) and “tasks” (PIPA). The magnitude and targeting of ministry and provincial climate budgets to policies is identified through quantitative analysis and assessment of case studies.

To produce the following analysis on NCCS, VGGS and PIPA, the total climate change related investment budget from 2016 – 2020 was used for 6 ministries and for 29 provinces. The task level budgets of the typology were linked to the strategic actions, solutions or tasks of the respective policy,

using a cross coding system. This approach was similar but not identical to that used for NCCS and VGGS analysis in the CPEIR 2015.

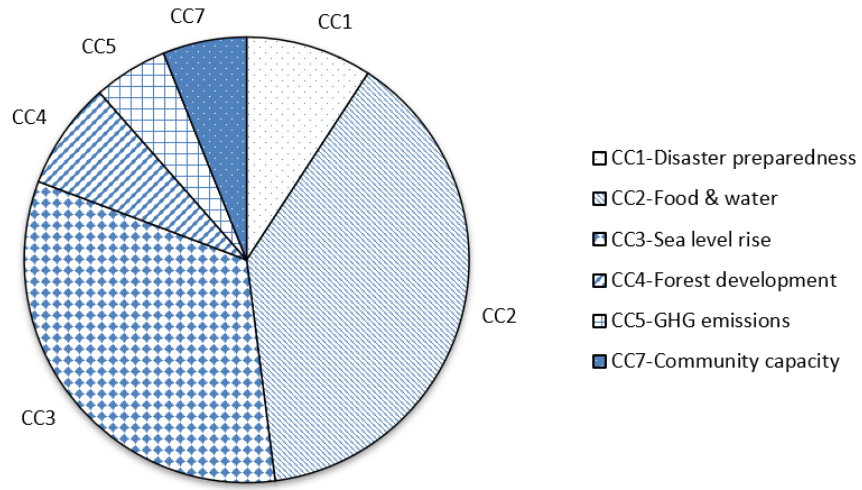
However, two modifications were made in the source data to make the analysis more robust: firstly, adaptation-based transport budget lines (CCD2.3) were removed as policy objectives were only linked to transport mitigation; secondly, and equal split between policy objectives was made in tasks budget which link to two or more policy objectives. For the VGGS and PIPA, not all the climate budget tasks tracked onto policy objectives. The (2015) typology covers tasks in the broadest sense of climate change and the VGGS includes specific climate change response areas, but not all and some green growth actions are not focused on climate change. PIPA includes mainstreaming of climate change in national sector programmes not all of which are covered by the typology.

The allocation of climate budget to the NCCS showed a variety of responses, with over 50% of the budget being linked to food and water (see figure below). Two of the six studied ministries dominated the climate change budget: MARD and MOT. These ministries targeted strategic actions of the NCCS which together represented 86% of the overall climate change related budget: MARD focusing on food and water (CC2) and MOT on reducing GHG emissions (CC5). The budget allocations to GGS and PIPA are presented in Chapter 5 of the report.



The combined allocation of six studied ministries to the NCCS strategic actions (2016 – 2020; annual mean budget of 11,781 billion VND)

Provinces were highly focused on concrete and practical climate related interventions, rather than e.g. technological aspects provided by central ministries. Activities such as food and water, sea level rise, forest development and GHG emissions make up a majority of spending under the NCCS (see figure below). These activities are mainly infrastructure related and do not pick up on provincial level "soft" aspects such as awareness raising and capacity building to promote local action which are often detailed in provincial level climate related policy.



The allocation of provincial climate change related investment budget to NCCS strategic actions (2016 – 2020; total budget 26,219 billion VND per annum)

There are opportunities for further alignment between provincial plans and climate change budgets, for example in relation to expenditures in road and waterway transport. However, detailed project-by-project investigation of with the provinces is needed to fully quantify this, which is beyond the scope of this CPEIR.

The linkage between the VGGS, PIPA and the CPEIR typology tasks created some methodological challenges. The climate budget of NCCS was greater than the climate budget for GGS and PIPA, in both ministries and provinces. This is because of the broad array of climate responses in the NCCS. However, as explained above, not all climate investment budget could be tracked onto VGGS solutions: 64% of the ministry investment budget for ministries, and 45% of provinces. There are also some inconsistencies between the CPEIR typology and national climate change policy objectives in the NCCS, VGGS and PIPA, especially around the adaptation and mitigation aspects of transport (see Table 5.1). This demonstrates that much care in codification should be taken if a regular and systematic climate finance tracking is developed.

Recommendations

Based on the analysis undertaken in this study, a number of recommendations were made:

1. ***Mainstreaming climate change and strengthening planning with* climate change *resources.*** In the short- to medium-term, it is recommended that the MPI issue guidelines for integrating climate change-related plans and projects in more detail into an annual consolidated action plan (e.g., annual public investment plan) of ministries and provinces / cities. In the longer term, sector-based strategies and action plans (such as Action Plan on Climate Change Response Action Plan or Green Growth Action Plan) should be integrated in the sector's strategic objectives and SEDP.

2. ***Systematically track and report climate change budget and expenditure.*** It would be most effective to move away from retrospective-CPEIR style studies and progress towards systematic climate expenditure tracking which is built into the planning and budgeting system. To do this requires development of a comprehensive monitoring and reporting system for climate investment and expenditure that can meet international reporting requirements and

effective use on the domestic level, which should include the following components: (i) Investment expenditure and recurrent expenditure; (ii) Integration of public expenditure at the central and provincial levels; and possibly (iii) Private investment in climate change.

3. ***Use the CPEIR results effectively.*** The CPEIR information can be used to strengthen the climate change responsiveness of the public finance management system, promote a shift from input-based to output-based budgeting and promoting further climate-related interventions through provinces and line ministries. The CPEIR approach should be implemented on a regular and periodic basis in order to publish and provide information on climate change investment that will demonstrate Viet Nam's efforts and commitment to implementing the Paris Agreement on Climate Change. These results can then help adjust and supplement the annual budget in line with the 5-year medium-term public investment plan related to climate change. Furthermore, this would help establish a basis for mobilizing and diversifying domestic and international funding sources to address climate change in Viet Nam.

4. ***Strengthen capacity on climate change policy and finance.*** Public climate investment and expenditure review and planning by ministries and provinces should be strengthened to ensure a clear and comprehensive analysis of public sector tasks and prioritize CC expenditure. It is necessary to strengthen capacity for officials on climate and green growth policies, guidelines for climate change investment and expenditure review such as classification, coding, analysing and preparing reports. The roll-out of climate change tracking system will need to be promoted through capacity raising workshops coupled to Training-of-Trainer courses for provinces and ministries. There is also a need to further develop capacity to implement the proposed public climate expenditure monitoring.

1 Climate change policy, planning and budgeting

1.1 Introduction

In this chapter we review Viet Nam's climate change and green growth policies, and associated institutional set-up at the national, sector and provincial level.

Section 1.2 provides a summary of the main climate change effects and impacts on Viet Nam as well as trends in Viet Nam's greenhouse gas (GHG) emissions. Section 1.3 examines the main climate change response policies at national (sectoral) and provincial levels, including climate change adaptation, green growth and GHG emission mitigation policy.

The core elements of the institutions that coordinate and support the responses are presented in section 1.4, as good coordination is essential for effective and efficient climate and green growth policy. This section also looks at planning climate change and green growth projects, investments, and it briefly introduces the Support Programme to Respond to Climate Change (SPRCC), the main climate change and green growth ODA mechanism that applied over the period of analysis.

This is followed by section 1.5 on the system of planning and budgeting which is critical for ensuring that policy is financed and implemented at all levels of government. Finally, some conclusions on fiscal policy, including budgeting are made in section 1.6.

1.2 Climate Change and Viet Nam

1.2.1 Climate Change observations and projections

Viet Nam is very vulnerable to the impacts of climate change. Over the past decades increases in temperatures and sea levels have been observed; stronger tropical storms with storm surge risks; river floods; as well as meteorological droughts that are associated with the el Niño phenomenon.

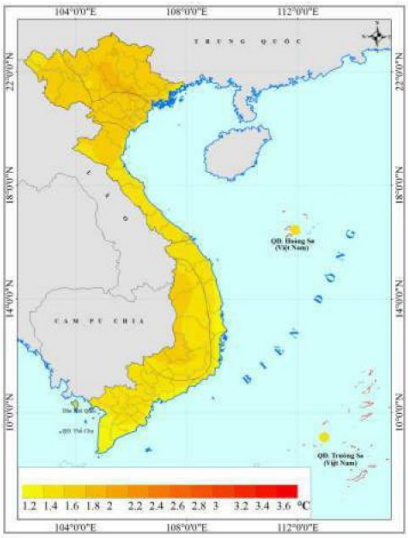
MONRE (2016a,b) used an ensemble of four global circulation models (GCMs) to assess climatic changes through the 21st century. Model runs were done for different Representative Concentration Pathways (RCPs) defined by the Intergovernmental Panel on Climate Change (IPCC), which represent a mix of global policies leading to different levels of global greenhouse gas emissions and the extent of global warming and climate change. For a medium level of emissions to 2100, i.e. RCP4.5, MONRE (2016a,b) provides the following expected trends, compared to the reference period 1986-2005.[1]

Temperatures:

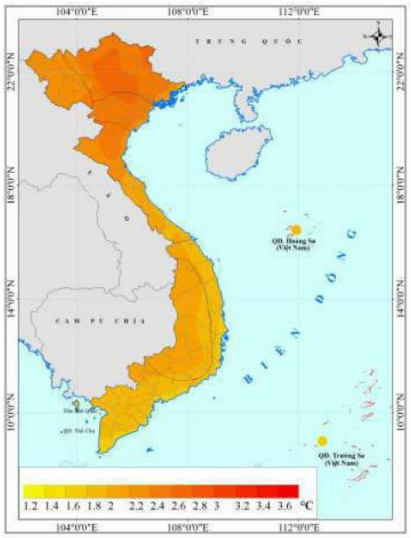
- Compared to the reference period 1986-2005, average annual temperatures would increase by 0.6 to 0.8°C across the country by 2030 and 1.3 to 1.7°C by 2050. By the end of the 21st century, temperature would increase 1.9 to 2.4°C in the North, and 1.7 to 1.9°C in the South.
- Average annual maximum temperatures would increase a bit more than the annual average increases (see Figure 1.1).

[1] *The world is currently on the higher emissions' pathway, RCP6. The ambition agreed under the UN Framework Convention on Climate Change (UNFCCC) in Paris in 2015 is to keep average global warming to well below 2 °C by 2100 and preferably no more than 1.5 °C, compared to pre-industrial temperatures. Viet Nam has agreed with this, as Party to the UNFCCC. This level of global warming would be roughly the RCP2.6 scenario and will require increased mitigation commitments by all Parties to the UNFCCC, and there is hope for higher ambitions. Thus, the RCP4.5 seems the most realistic, at this moment.*

- The number of hot days (over 35°C) will increase in most parts of the country. Droughts will become more severe



By about 2050

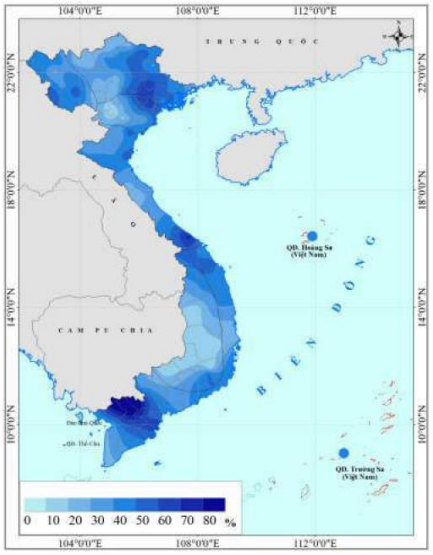


By about 2100

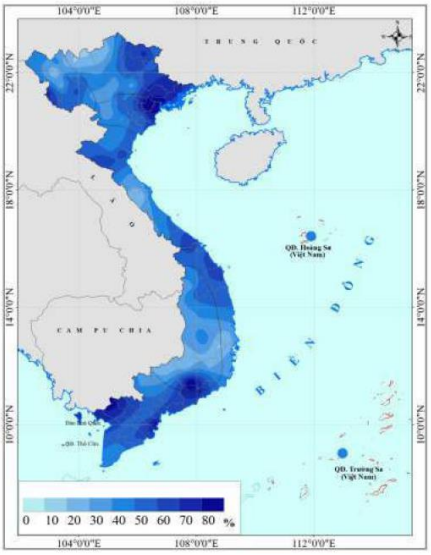
Figure 1.1 - Change of annual average maximum temperature (°C) (RCP4.5 scenario)
Source: MONRE (2016a), Figure 5.4.

Rainfall:

- Annual rainfall will increase in the whole country. By 2030 annual rainfall would increase in most regions by 5 to 10% and 5 to 15% by 2050, compared to the reference period. By the late 21st century, the rainfall patterns are similar to that of mid-21st century.
- Changes in intensive rain events will be substantial, as the average 1-day and 5-day maximum (see Figure 1.2) Figure 1.2



By about 2050



By about 2100

Figure 1.2 - Change of the largest average 1-day rainfall (RCP4.5 scenario)
Source: MONRE (2016a), Figure 5.11.

Tropical storms, winds:

- The number of typhoons and tropical depressions may decrease but the number of strong to very strong typhoons is expected to increase.
- The summer monsoon is expected to start earlier and end later.

Sea level rise:

- Mean sea level rise along the Vietnamese coast compared to the period 1986-2005 would by 2030 be about 13 cm higher. By 2050, it would be 22 and by 2100 55 cm, under the RCP4.5 GHG emission scenario. Viet Nam has agreed 1m mean sea level rise for planning by 2100, which is justified because of uncertainties in the GCMs in which the full scale of global land ice melting and collapse into the oceans are not yet included.
- Most vulnerable to mean sea level rise are the deltas, especially the Mekong Delta and the Red River Delta and low-lying cities including Ho Chi Minh City (HCMC). In coastal areas occasional high tidal inundation is worsening and tropical storms during high tide cause storm surges; further inland drainage of local rainwater is weakened as increasing amounts of land will be below mean sea level. The risks of inundation due to a lack of drainage capacity is enhanced by land subsidence that is particularly severe in HCMC and the Mekong Delta.
- Sea level rise is already increasing the saline water pressure into estuaries and river branches during the low river-flow dry seasons, in particular in the Mekong Delta.

1.2.2 Climate Change Impacts

Climate change and sea level rise impact on lives, livelihoods and many sectors. Climate-related shocks and stresses (hazards) are worsening, and Vietnamese people, communities, productive assets, businesses and infrastructure are exposed to those, due to its geography, topography, and economic development (as the value of exposed assets is increasing). Some people, communities, assets and infrastructure are more vulnerable than others, especially poorer households, women, ethnic minorities, elderly, youth and disabled in rural areas. The climate-related shocks and stresses combined with exposure and vulnerability are resulting in increasing risks unless climate change adaptation and protective measures are undertaken.

The climate-related risks, or impacts of climate change and sea level rise, are particularly high in the coastal zone, the major deltas and mountainous areas, but risks are diverse. Climate change is affecting economic growth and poverty elimination, whereas these are needed to reduce social vulnerabilities and to generate capital to invest in reduced exposure through adaptation actions including infrastructure. The agricultural sector, including crops, orchards, livestock and aquaculture, is particularly impacted by climate change, as it is strongly weather dependent. Terrestrial protected areas are affected by e.g. extreme droughts and salinity intrusion, whereas forests can have adaptation as well as greenhouse gas (GHG) emission mitigation benefits. Coastal mangrove along much of Viet Nam's long coastline, which is rich in biodiversity, must provide protection from high tides and storm surges and other ecological services, but regeneration and expansion is limited whereas pressures to convert it into aquaculture are relentless. In addition, marine ecology and capture fisheries are affected by warmer and acidifying oceans because of rising CO_2 levels, whereas plastic and other pollution has reached alarming levels and is affecting creatures up and down the food chains.

Rural households and communities and their livelihoods are particularly vulnerable and exposed to climate-related stresses and shocks. Resource-poor farmers and farm workers, in particular women

are amongst the most vulnerable and they may fall into poverty because of disasters. They are amongst the seasonal and permanent migrants to towns and cities. "*Climate change exacerbates rapid- and slow-onset shocks and gradual environmental degradation"* which may trigger their decisions to move out, as their assets may have depleted (UNDP-Viet Nam, 2014b). But the urban poor who live in informal settlements are also affected. Urban inundation is made worse as sea level rise and land subsidence cause reduced drainage capacities in e.g. Ho Chi Minh City. This may not take many lives compared to e.g. traffic casualties, but inundation enhances disease vectors, is a nuisance, and impacts informal sector incomes. The elderly and the young, both rural and urban, are vulnerable to excessive heat, as heatwaves are becoming more frequent. Ethnic minorities in different parts of Viet Nam tend to have low incomes and high levels of vulnerability as well as exposure to climate-related shocks and stresses, in their fields, businesses and at home. They may have traditional knowledge that is highly relevant to living with climate variability, but they often have lower educational achievements, ability in the majority Kinh language, technological skills and less access to health and financial services. Women and girls tend to me more vulnerable and exposed than men and boys, because of traditional role division and e.g. lower levels of educational achievements. Younger rural men and women are the majority of rural-to urban migrants and the age of farm workers is increasing. Access to health services is uneven for different people, but is especially important during and immediately after climate-related extremes.

The costs of climatic changes in the past have not been estimated, but the costs of natural disasters may be treated as a proxy, because most natural disasters in Viet Nam are climate related. This has been estimated as approximately 1.5% of GDP annually, across the country over the past decades (Trần Thục et al., 2015 p.157). The most affected sectors are agriculture, including crop farming, aquaculture, livestock keeping and forestry. Damages are particularly sustained to crops (and therefore short-term income), irrigation and transport infrastructure, also e.g. power distribution lines, depending on the climate-related extreme event. The costs to GDP are included in the Global Climate Risk Index (GCRI), which is based on death and financial losses as a result of extreme weather-related events over a rolling 20-year period, covering most countries of the world. In the GCRI for the period 1990-2008 Viet Nam ranked as the fourth at-risk country in the world, whereas in the GCRI for the period 1999-2018 Viet Nam was the sixth most at-risk of the 181 countries included (Harmeling, 2009; Eckstein et al., 2019). Some of the major Vietnamese disasters in the latter period took place in the Mekong Delta (2016 droughts, river floods in 2000, 2001, 2011); the Central Highlands and Southeast (e.g. drought in 2016); floods in the central region in 1999; whereas several typhoons made landfall at the northern and central coast throughout this period, causing storm surges and coastal inundation and damage, and moving westwards to the mountains where they caused heavy rainfall, flash floods and landslides.

The World Bank studied "the economics of adaptation" in Viet Nam (and some other countries, as part of a global study) and concluded that climate change impacts on agriculture could reduce total GDP in 2050 by 0.7%-2.4%, depending on greenhouse gas emissions pathways. They proposed climate change adaptation measures that are "no regret" actions such as agricultural research, development and extension; irrigation systems for rice and other crops; and upgrading of sea dikes and flood defences to protect urban areas and agricultural land, especially in the Mekong and Red river deltas. Based on model studies, it was also concluded that by 2050 the benefits of adaptation measures could be 1.3-1.6% of total GDP and outweigh the costs of adaptation (World Bank, 2010).

Viet Nam's technical report underlying its Intended Nationally Determined Contribution (INDC) that was submitted to the UN Framework Convention on Climate Change (UNFCCC) in 2015, singles out

the potential effects of sea level rise on the Mekong Delta, especially crop production (MONRE, 2015). An assumed rise in mean sea level of 1 m would cause over 40% loss of the annual rice yield, in the absence of climate change adaptation measures, which would strongly affect national food security and export. Climate change effects such as high temperatures, extended drought, extreme rainfall intensity and changes in the meteorological seasons are altering the crop cultivation patterns, increasing crop diseases and decreasing productivity. Maize and soybean yields would also be strongly affected, threatening animal feed production, without adaptation measures. Rising sea levels will have adverse impacts on aquaculture due to inundation of ponds and a loss of stock in the coastal region and deltas, and fish stocks are at risk due to higher temperatures of sea water. The latter can only be addressed by slowing down climate change through strongly reduced GHG emissions, but many other impacts can be reduced through adaptation.

1.2.3 Greenhouse Gas Emissions

Viet Nam will become a major greenhouse gas (GHG) emitter by 2030, unless it fully implements recent climate change and green growth policies and makes those more ambitious. According to a business-as-usual (BAU) emissions scenario, Viet Nam's total annual emissions would almost quadruple in the period 2010-2030. This is especially because of the strong increase in coal-power generation according to current policies ("Power Development Plan 7-revised"[2]). Viet Nam's energy and carbon intensity of GDP are high by international comparison (Audinet et al., 2016). Fossil fuels for power generation, industry and transport are comparatively cheap in Viet Nam as a result of price controls and indirect subsidies, which partly explains the high energy and carbon intensity and low investment rate in non-hydro renewable energy until 2018 (UNDP-Viet Nam, 2018).

Viet Nam's INDC of 2015 sets a domestically supported target of 8 percent GHG emissions reduction by 2030 compared to BAU, and a 25 percent target on condition of international support. Figure 1.3 shows that with the 8 percent target emissions would still more than triple, from 226 million tonne carbon dioxide equivalent (MtCO2e) in 2010 to 725 million tonne in 2030. Achieving the conditional 25% target would mean that emissions in 2030 would be 590 million ton in 2030. This would be 5.4 ton/capita with an assumed population of 110 million in 2030, which according to analysis of NDCs of many other countries would place Viet Nam among the high emitters in 2030 (CCWG, 2018a,b). Importantly, future emissions will be for the large part in the energy sector where emissions reductions according to the INDC of 2015 will be a relatively small percentage. The GHG emission reduction targets in the INDC are for 2030 but the Plan for Implementation of the Paris Agreement ("PIPA") was issued in 2016 (SR Viet Nam, 2016) and measures described in PIPA and the related provincial action plans apply to part of the period analysed in this CPEIR update (policies are discussed in section 1.3).

[2] Power Development Plan 7-revised" is presently in operation; "Power Development Plan 8" is in a preparatory stage

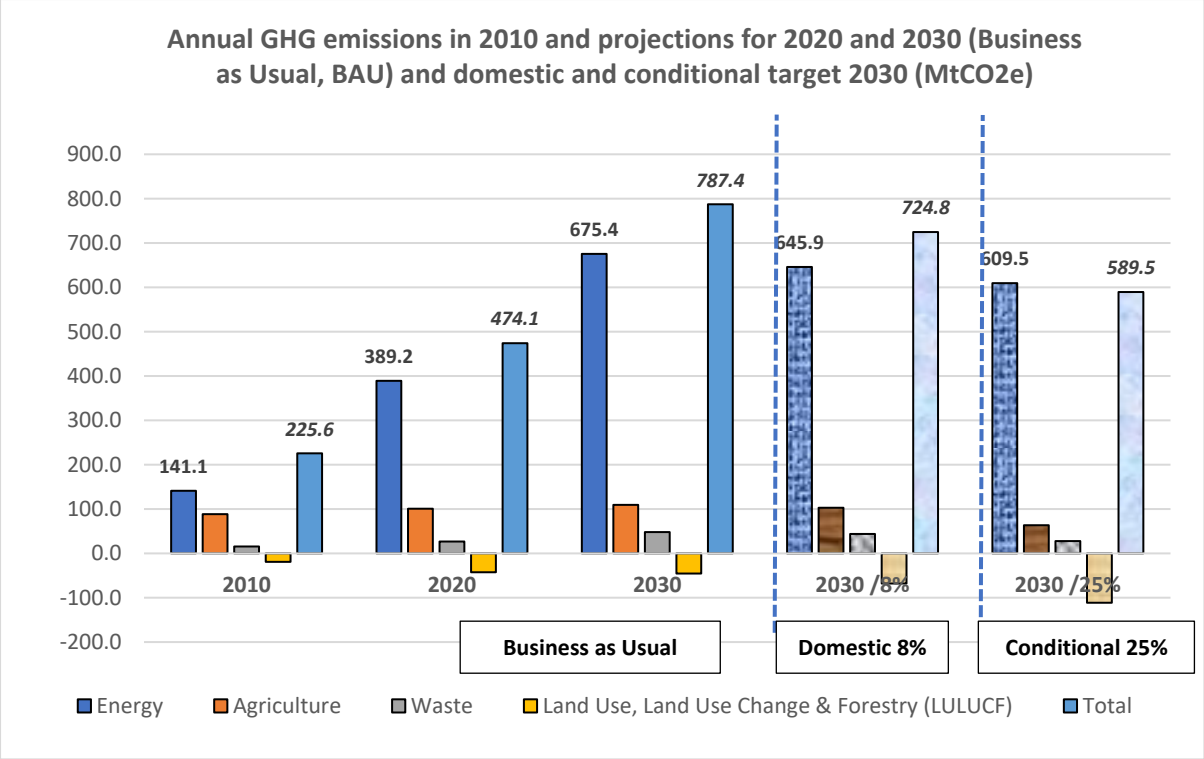


Figure 1.3 – INDC (2015): GHG emissions 2010; projections for 2020 and 2030 (BAU), targets 2030.

Source: UNDP-Viet Nam (2018). Data from SR Viet Nam (2015a) and MONRE (2015).

The INDC has been reviewed, revised and submitted to the UNFCCC in 2020 (SR Viet Nam, 2020b). The updated NDC of 2020 includes prioritised actions to achieve the targets, but it is not relevant to financial data analysis for the period up to 2019, for which existing policies such as the Climate Change Strategy of 2011, the Green Growth Strategy of 2012 and the INDC of 2015 should be applied. Nevertheless, the updated NDC in terms of emissions targets in Figure 1.4 and the review of potential GHG emissions reductions is relevant to understanding comparative effects of investments in recent years. Similarly, Viet Nam has recently issued its National Adaptation Plan for the period 2021-2030 (and outlook to 2050), with substantially more detail than the updated NDC as regards adaptation (SR Viet Nam, 2020c), which is also relevant to understanding past adaptation achievements.

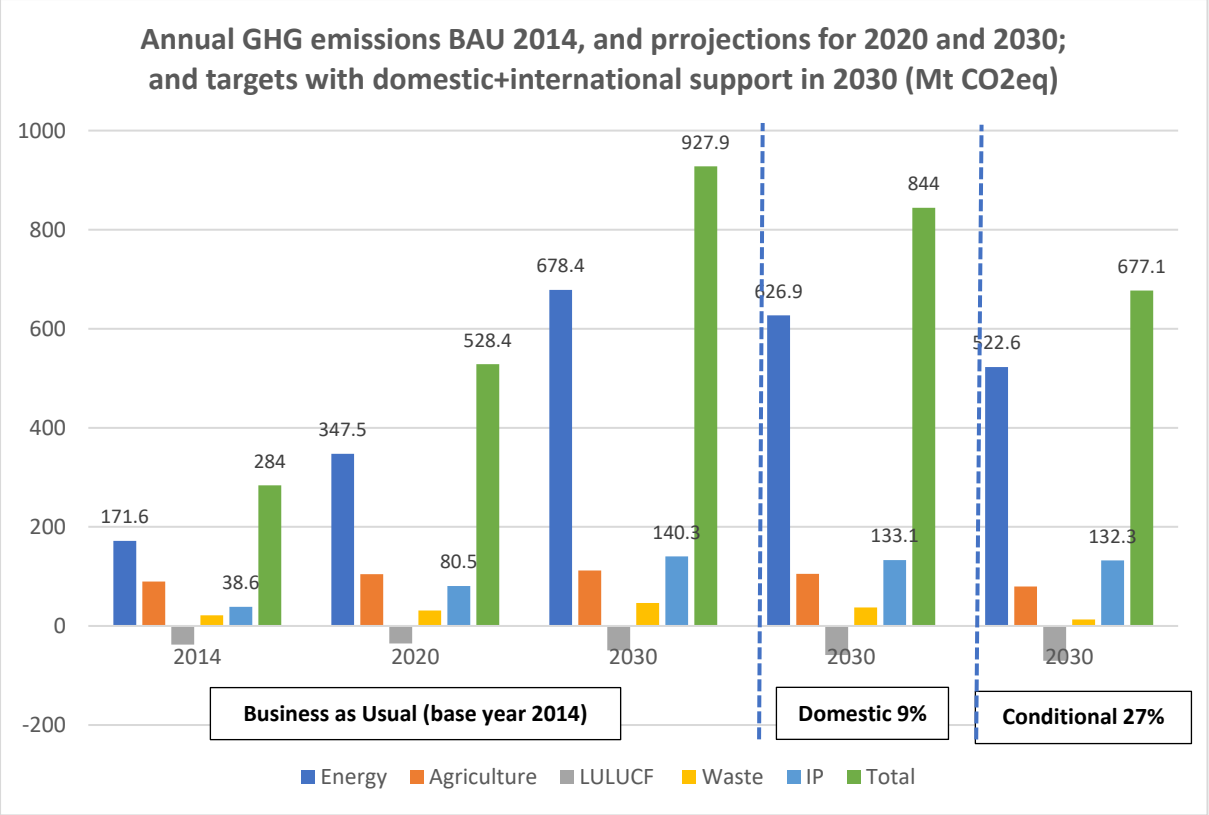


Figure 1.4 – Updated NDC (2020): GHG emissions 2014, projections for 2020 and 2030 (BAU), targets 2030

Source: SR Viet Nam (2020b).

The updated NDC reflects progress with implementation of various climate change related policies before 2020; a policy update; additional GHG emissions data on the industrial processes (IP) sector and updated base year data (2014 instead of 2010); the notion of co-benefits and analysis of the updated NDC impacts on the national economy and social groups; better analysis of gender relations and rights of social groups; and analysis of Loss & Damage. The total projected emissions in the business-as-usual (BAU) in 2030 remained the same compared to the INDC of 2015, apart from the additional IP sector emissions, but the review adjusted the projected BAU emissions in the individual emissions-sectors (compare Figure 1.3 and Figure 1.4).

Ambition on reduction of future GHG emissions has increased in the updated NDC, both in the scenario of only using domestic resources and the scenario conditional on international support, but only slightly (see Figure 1.3 and Figure 1.4). The national target increased from 8% to 9% and 25% to 27% reduction against BAU in the domestically supported and internationally supported scenarios, respectively. In absolute quantities this was an increase from 62.6 to 83.9 MtCO2e and from 197.9 to 250.7 MtCO2e in 2030 against BAU, in the domestically supported and internationally supported scenarios. Energy production and use is the highest emissions sector by far, and the updated NDC emissions reduction scenarios in the energy sector are more ambitious compared to the INDC.

The importance of energy in total emissions means that in public expenditure analysis, any expenditure on production of clean energy or energy efficiency is of high relevance, concerning the industry and trade sector, as well as for example transport, construction and agriculture (machinery, pumps). The figures also show that other categories produce fewer emissions but the potential for

reduction is still considerable, as is the case of forestry for negative emissions (sequestration). Expenditure on climate-relevant agricultural technology development and promotion, transport and construction, technology for emissions reduction from waste should be recorded.

The analysis also suggests that additional emissions reduction as in the updated NDC is possible and would deliver many benefits. Emission reduction will require improved energy efficiency and in particular an increase of the renewable energy share in Viet Nam's energy mix, especially solar PV and wind power generation. This is expected to provide an impulse to GDP growth and has environmental and social co-benefits, depending on how this will be implemented (UNDP-Viet Nam, 2018). Increased ambition to reduce future emissions are made possible by the recently issued third Viet Nam Energy Efficiency Programme (VNEEP3) (SR Viet Nam, 2019). The *Orientations for the Viet Nam National Energy Development Strategy to 2030 and Outlook to 2045* (CPV, 2020) suggests policy shifts, such as a limit on coal power expansion and expansion of renewable energy, which is a significant departure from the BAU in Figure 1.3 and which in fact suggests that further increase in ambitions, over and above the targets in the updated NDC may become possible as well.

1.3 Climate Change and Green Growth Policies in Viet Nam

This section examines the main climate change response policies at national (sectoral) and provincial levels over the past decade, on climate change adaptation, green growth, and GHG emissions mitigation.

Viet Nam has issued a large number of policies related to climate change from 2008 onwards, which has relevance to climate change related public expenditure decisions in the period till 2020. Following are the main policies:

The Communist Party of Viet Nam (CPV) issued Resolution 24-NQ/TW (2013) on response to climate change and the improvement of natural resources management and environmental protection; and more recently Resolution 55 on the orientation for the National Energy Development Strategy to 2030, with a vision to 2045 (2020). The former has had important effects on government policies and financial allocations over the period under review in the CPEIR 2020. The latter has not yet had impact, but it sets out a clear pathway towards reducing GHG emissions from the energy sector in the coming years. Viet Nam also issued or amended several laws in the past decade, notably the Law on Energy Efficiency (2011); the Law on Water Resources (2012); Law on Natural Disaster Prevention and Control (2013); the Land Law (2013); the Law on Environmental Protection (2014) (amended again in 2020, entering into force in 2022); the Law on Hydro-Meteorology (2015); the Forestry Law (2017); the Law on Fisheries (2017); the Law on Crop Production (2018); the Law on Animal Husbandry (2018); the Biodiversity Law (2018); and the Law on Marine and Island Resources and Environment (2018).

The strategies relevant climate change and green growth include the Forestry Development Strategy 2006-2020 (2007); National Energy Development Strategy to 2020, with a vision to 2050 (2007); the National Strategy on Climate Change (2011); the Green Growth Strategy (2012); the Transport Development Strategy to 2020, with a vision to 2030 (2013); and the Renewable Energy Development Strategy to 2030, with a vision to 2050 (2015).

Programmes, plans and schemes directly related to climate change adaptation and/or GHG mitigation include the National Target Programme on energy-saving and energy efficiency (2006; extended last time in 2019); the National Target Programme to Respond to Climate Change for the period 2009-

2015 and the Target Programme on Climate Change Response and Green Growth for the period 2016-2020 (2017); the National Action Plan on climate change in the period 2012-2020 (2012); the National Plan on urban development of Viet Nam in response to climate change in the period 2013-2020 (2013); the National Action Programme on mitigation of GHG emissions by reducing deforestation and forest degradation, sustainable management of forests, and conservation and enhancement of forest carbon stocks (REDD+) to 2030 (approved in 2012 for the period 2011-2020, renewed in 2017); the National Action Plan on Green Growth in Viet Nam for the period of 2014-2020 (2014); the Intended Nationally Determined Contribution (INDC) (2015); the National Power Development Plan for the period 2011-2020, with a vision to 2030 (revised in 2016); the Plan for Implementation of the Paris Agreement (2016); the Support Programme to Respond to Climate Change (SPRCC) (starting in 2009, last commitment made in 2020 – see World Bank, 2020); the Science and Technology Programme for Climate Change Response, Natural Resources and Environmental Management (2016-2020 period) (2016); the National Action Plan for the Implementation of the 2030 Agenda for Sustainable Development (2017); the Science and Technology Programme for Natural Disaster Prevention and Control and Environmental Protection (2016-2020) (2018).

Following many of these national policies, sector ministries, provinces and cities have issued a number of sectoral, local policies and plans related to climate change such as climate change action plans; green growth action plans; and plans for implementation of the Paris Agreement; and they integrated climate change mitigation and/ or adaptation in sectoral development strategies, masterplans and plans.

Based on all that plus substantial technical analysis, Viet Nam has recently submitted its updated Nationally Determined Contribution (NDC; submitted to the UNFCCC in 2020), which will evidently not have impacted on budget allocations in the past years, but it sets the frame for the coming years in which somewhat higher ambitions in GHG emissions reduction and climate change adaptation will have to be achieved with substantial public expenditure as well as private sector investments.

Altogether, the large number of policies issued in the past years demonstrates that Viet Nam has achieved a substantial level of “mainstreaming” of climate change in sector policies and local actions. However, mainstreaming is constrained by capacity limitations, in particular at the provincial level, and the large number of policies makes it hard to understand how climate change responses are considered in allocation of public budgets. The policies are also too many to summarise and analyse here in much detail. The focus in the following subsections is on those policies that have likely determined actual climate-relevant public expenditure over the past years, nationally and in provinces. These include the policies with the most concrete tasks, programs and projects on climate change-relevant challenges, units in ministries, provinces and government agencies, and investments.

1.3.1 Natural Disaster Strategy (2007)

The *National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020* (SR Viet Nam, 2007) highlights “Natural disaster prevention, response and mitigation responsibilities and solutions” for each region. It includes “initiatives to prevent” (the effects of) storms, thunderstorms, whirlwinds, salinity intrusion, drought, and (river) floods. This strategy includes an Action Plan with “target programs up to 2020” that demonstrate that natural disaster management in Viet Nam is intricately linked to climate change adaptation. In summary:

<u>Non-structural measures:</u>

a) Program on improvement of legislation and policies
b) Program on consolidation of organizational structures
c) Program to make and review master plans
d) Programs on strengthening of disaster warning and forecast capacities
e) Programs on community awareness raising
f) Programs on forestation and protection of upstream forests:
g) Program on strengthening of disaster management capacities and science and technology application

Structural measures:

- Program to review, upgrade and newly build natural disaster prevention, response and mitigation structures matching the designed standards and each region's disaster characteristics.
- Program to construct reservoirs and establish operation procedures of reservoirs to effectively explore water resources and regulate water levels for downstream areas to respond to flood and drought.
- Program to expand flood discharge openings of bridges and sluices in roads and railroads.
- Program to construct erosion prevention structures
- Program to enhance dyke systems, to upgrade sluices underneath the dykes, and to harden surface of dykes of grade 3 upward.
- Program to construct storm shelters for boats and ships.
- Program to construct residential clusters for flood and storm avoidance.

Most of those activities were expected to be completed by 2020. Several will however likely continue in new plans and programmes as all the challenges will by the end of 2020 not have been resolved completely, for example because of scarce financial resources. Disaster risk reduction actions such as the above, as well as e.g. annually updated disaster preparedness plans at local level (including evacuation in case of disaster warnings), were codified in the *Law on Natural Disaster Prevention and Control* of 2013. And after issuing this law, the Viet Nam Disaster Management Authority (VDMA) was created, based within the Ministry of Agriculture and Rural Development (MARD), with more tasks, human resources and financing compared to the structures of the past.

1.3.2 National Target Program to Respond to Climate Change (NTP-RCC) (2008 onwards)

The "National Target Program to Respond to Climate Change" (NTP-RCC) was issued in 2008 (SR Viet Nam, 2008), and was Viet Nam's first major climate change policy. It was extended for the period 2012–2015 (SR Viet Nam, 2012c) and as "Target Programme to Respond to Climate Change and Green Growth" for the period 2016-2020 (SR Viet Nam, 2017). Provinces and sector ministries issued related action plans concerning their responsibilities under the NTP-RCC and subsequent policies.

The NTP-RCC stresses the need for mainstreaming climate change responses into social and economic development, while pursuing broader sustainable development. It stresses that responding to climate change is a task of all sectors, provinces and people. The first phase of the NTP-RCC (2009–2010) focused on scientific analysis and initial planning, the second (2011–2012) on further analysis, detailed planning, capacity building and development of (sector and provincial) action plans. The early focus of the NTP-RCC was on adaptation (e.g. hydro- meteorological infrastructure) whereas green growth and GHG emissions mitigation actions were included in the third stage (2012-2015). The latter included

“projects and tasks” to which ministries and provinces will have allocated some of their financial and human resources, as summarised in Table 1.1.

Provinces have reported on their achievements with NTP-RCC implementation in 2016, with highlights summarized in

Table 1.2 (reports are available for 21 of the 29 provinces under review - see overview in Annex 1). Similar comprehensive reporting from provinces and ministries for the phase to 2020 does not appear to be available yet.

Table 1.1 - NTP-RCC (2012-2015): Summary of Projects and Tasks of ministries and localities

Projects and Tasks of ministries and localities (summary)	
a)	Analyse trend of increasing natural disasters due to climate change; update climate change and sea level rise scenarios.
b)	Building a monitoring system for climate change and sea level rise.
c)	Developing and implementing action plans to respond to climate change.
d)	Implement the Climate Change Action Plan of each ministry, including assessment of impacts of climate change and sea level rise on each area managed by **each Ministry.**
e)	Ministry of Natural Resources and Environment (**MONRE**): increase capacity to warn and forecast natural disasters; improve water resources management capacity; determining changes and solutions for land use biodiversity conservation, and greenhouse gas emissions from landfills in the context of climate change, sea level rise.
f)	Ministry of Agriculture and Rural Development (**MARD**): research on climate change adaptation in crop production, irrigation planning; early warning system in the context of climate change; pilot projects on climate change adaptation and reduction of greenhouse gas emissions in agriculture; sustainable forest management and coastal protection.
g)	Ministry of Industry and Trade (**MOIT**): proposing solutions to ensure national energy security in the context of climate change; control greenhouse gas emissions in industrial processes and commercial activities; pilot projects to mitigate greenhouse gas emissions in low-carbon sectors.
h)	Ministry of Transport (**MOT**): identify solutions for low-greenhouse gas emissions from vehicles; development of GGAP.
i)	pilot projects to mitigate greenhouse gas emissions in transportation.
j)	Ministry of Construction (**MOC**): identify solutions for adaptation to climate change and sea level rise by urban areas and key economic regions; developing standards, regulations for energy efficiency; pilot projects to reduce greenhouse gas emissions in the production of building materials.
k)	Ministry of Planning and Investment (**MPI**): develop guidance for integrating climate change into strategies, programs, and plans.
l)	Ministry of Public Security (**MPS**): consolidating and strengthening the search and rescue capacity; develop training programs to improve search and rescue capacity related to climate change and natural disasters.
m)	Ministry of Health (**MOH**): determine the responsiveness of the health care system and policy in the context of climate change.
n)	Ministry of Labour, War Invalids and Social Affairs (**MOLISA**): identifying employment and poverty alleviation solutions for regions at high risk of natural disasters due to climate change and sea level rise.
o)	Ministry of Culture, Sports and Tourism (**MOCST**): determine solutions for cultural heritage conservation and tourism development in the context of climate change.
p)	All **provinces**: Update action plans to respond to climate change.
q)	**Quảng Nam** and **Bến Tre** provinces: planting, restoring and protecting mangroves in order to combat coastal erosion and protect coastal ecosystems; to upgrade the irrigation and water supply systems in the face of rising tide, salinity, flooding and drought.
r)	Strengthening state management capacity on climate change, perfecting organizational systems, mechanisms, policies, financial institutions on climate change.
s)	Develop and implement a community education program on policies and laws and disseminate knowledge and skills on climate change adaptation and disaster prevention.
t)	Develop and implement communication activities, raise awareness and knowledge of the media on climate change.
u)	Organize communication activities, raise awareness on climate change for the management apparatus at all levels and the population community in the province. Develop education and training programs on climate change in Education and Training Programs at all levels.

Table 1.2 - Challenges & lessons from NTP-RCC implementation in provinces (2009-2015)

Difficulties and shortcomings
1. Climate change policies have not yet been perfected, and because climate change is a relatively new issue, there is still confusion and inconsistency in implementation at the local level. Policy and guiding documents on climate change were still incomplete (in 2016). No law on climate change as the basis for the organization and structure.
2. The coordination mechanism between the central and local levels is not yet good
3. Most provinces had established both a climate change coordination committee and some an office to support that, including with international support; others did not have a support structure by 2015 with full-time staff
4. The NTP-RCC meant that some (central) funds went to provinces for related activities, but spread over 63 provinces and cities the central financial resources were very limited; provincial budgets were very limited in most provinces and centrally managed cities. Limited funds for concrete and related projects such as dyke construction for flood protection in lowlands, erosion protection
5. Most provinces had some training programmes for officials, but climate change awareness of some committees, authorities remained low
6. Most provinces embarked upon awareness raising of the wider public on climate change, but by 2015 community awareness was uneven, and low among ethnic minorities and the poor.
7. Scientific and research and technology development and transfer on climate change responses is limited
8. Continued (climate change-related) challenges such as forest degradation, low quality waste landfills.
Recommendations, proposals
1. Develop policy and guidance documents on integrating climate change in development plans, and integrate climate change responses into the province's socio-economic development plans
2. Develop action plans to respond to climate change, integrate climate change into sectoral and local development plans for sectors, districts
3. Institutional strengthening with provincial office of climate change, capacity building of provincial and district officials on climate change responses, e.g. through training courses by MONRE
4. Strengthen and renew propaganda / awareness raising and climate change education
5. More research and transfer of technologies to reduce greenhouse gas emissions including energy saving
6. Invest in equipment for climate monitoring, natural disaster & weather forecasts, climate change scenarios
7. Increase funding for climate change responses
8. Diversify capital sources and mobilize investment including domestic and foreign private investment in responses to climate change
9. Promote regional and international cooperation

Note: this is based on 21 provincial reports, i.e. the majority of the 29 provinces under review

1.3.3 The National Climate Change Strategy (2011) and related action plans

The National Climate Change Strategy (NCCS) (SR Viet Nam, 2011) and the National Action Plan on Climate Change (NAPCC) for the period to 2020 (SR Viet Nam, 2012b) were followed by sector-based and provincial action plans, aiming to specify actions and budgets per sector and locality.

The NCCS includes ten strategic tasks on adaptation and mitigation (see Table 1.3; and in Chapter 5 these are used in the analysis of budget-policy links). The priorities included: implementing the NTP-RCC; the National Scientific Program on Climate Change; hydro-meteorological observation and forecasting; water resources management and climate change adaptation in the major deltas; management of GHG emission reduction activities and GHG emission inventory; climate change responses in megacities; sea dyke and river embankment reinforcement; healthcare; and community-level response. These same ten priorities are highlighted in the National Action Plan on Climate Change 2012–2020 (SR Viet Nam, 2012b), which lists 65 specific programs and projects, of which 10 were prioritised for the period 2012-2015, as summarised in Table 1.4.

Table 1.3 - National Climate Change Strategy (2012-2020): strategic tasks

NCCS - Strategic tasks
1. Proactive disaster preparedness and climate monitoring (CC1) a) Early Warning b) Disaster risk reduction
2. Food and water security (CC2) a) Food security b) Water security
3. Suitable proactive response actions to sea level rise in vulnerable areas (CC3)
4. Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)
5. Greenhouse gas emission reduction to protect the global climate system (CC5) a) Development of new and renewable energies b) Energy saving and efficiency c) Agriculture d) Solid waste management
6. Increase the role of Government in climate change response (CC6) a) Amendment and integration of climate change into other strategies and planning b) strengthening institutional capacity
7. Community capacity development in response to climate change (CC7) a) Communities responding to climate change b) Improving the public health system c) Raising awareness, education and training
8. Scientific and technological development for climate change response (CC8)
9. International cooperation and integration to enhance the country's status in climate change issues (CC9)
10. Diversification of financial resources and higher effective investment (CC10)

Table 1.4 - National Action Plan on Climate Change (2012-2020): programs, projects & tasks

Summary of programs, projects, and tasks in the National Action Plan on Climate Change (2012-2020)
1. To develop monitoring system of climate change and sea level rises (under NTP-RCC)
2. To modernize the system of hydrometeorological observation and forecast (under the Hydrometeorological Strategy)
3. To develop Atlas on climate and climate change in Viet Nam
4. To investigate, assess and develop zoning map for warning on risk of flash floods, landslides in mountainous regions
5. To develop tsunami warning system
6. To adjust crop and livestock patterns to adapt to the climate change, sea level rise
7. To develop system on disease control and prevention of plants and animals in the context of climate change
8. To develop mechanism, policy to strengthen system of insurance, risk sharing in agriculture
9. To adjust planning, to conserve and develop protection forest, mangrove forest, to restore watershed protection forest, to strengthen management, protection and prevention of forest fire (Viet Nam Forest Development Strategy 2006 - 2020)
10. To develop Mekong River Delta Program on water management and climate change adaptation
11. To develop Red River Delta Program on water management and climate change adaptation
12. To plan integrated water management in major river basins
13. To review construction standards, technical guideline of construction work in disaster prone areas
14. To improve safety conditions on housing for the poor households in disaster-prone areas
15. To review and rearrange residential areas frequently hit by natural disasters
16. To review and adjust irrigation planning of Mekong river delta, Red river delta, Central areas in the context of climate change and sea level rise
17. To construct storm shelter for vessels (Prime Minister Decision 1349/QD-TTg of 9 August 2011)
18. Measures against flooding, landslides, flooding in some major main roads, highways, railways and mountainous areas
19. To consolidate and upgrade river dyke system of Red river, Mekong river and Central Northern regions; to upgrade sea dyke system from Quang Ninh to Quang Nam, from Quang Ngai to Kien Giang (Prime Minister Decision 58/2006/QD-TTg of 14 March 2006, 667/QD-TTg of 27 May 2009 and 2068/QD-TTg of 9 December 2009)
20. To study the construction of works in river mouths in order to respond to sea level rise and salinity
21. To implement rehabilitation program to ensure reservoir safety
22. To implement projects under Irrigation Planning on waterlogging prevention for Ho Chi Minh city, Hanoi, and Can Tho city
23. To review planning, consolidate search and rescue network, to disaster responses in the context of climate change
24. To prevent riverbank and coastal erosion

Summary of programs, projects, and tasks in the National Action Plan on Climate Change (2012-2020)
25. To develop green growth strategy of Viet Nam with model of low carbon economy, green lifestyle and sustainable consumption
26. To develop policy to take advantage of Viet Nam's activities on greenhouse gas emission reduction
27. To develop procedures, measures of greenhouse gas inventory and standards of greenhouse gas emission in sectors
28. To develop measures for greenhouse gas emission reduction for the major energy production units and energy consumption agencies
29. To assess demand, to implement plan of climate-friendly technology transfer under the UNFCCC
30. To develop plan to remove inefficient, non-environmentally friendly technologies in agriculture, industry, energy and transportation
31. To develop assessment process of voluntary GHG emission reductions projects by measurement, reporting and verification (MRV); to formulate and implement projects on voluntary GHG emission reductions and projects with international financial and technological support
32. To identify conditions and legal foundation for carbon market in Viet Nam and participate in global carbon market
33. To pilot urban, residential area models which are green, environmentally friendly, and save energy, fuels and materials
34. Programme on Reducing Emissions from Deforestation and Forest Degradation (REDD)
35. To pilot climate-friendly measures in agriculture production
36. National Target Program on Energy Savings and Efficiency
37. Cleaner production strategy in industry towards 2020 (Prime Minister Decision No. 1419/QD-TTg)
38. To develop mechanisms and policies to encourage the use of energy saving vehicles, develop public transportation in urban areas, use compressed natural gas fuel, liquefied petroleum gas for buses and taxis
39. To apply new technology with low GHG emission in industrial production
40. To plan waste management, to reduce, reuse and recycle waste and reduce GHG emissions
41. To apply advanced technology for waste treatment in urban and rural areas
42. To review and supply legal documents, policy and mechanism on climate change
43. To identify strategic measures on climate change response
44. To finalize state management organization on climate change
45. To develop financial mechanism, to manage and use investment fund for climate change appropriate with international financial mechanism
46. To develop guideline, process to integrate climate change issues into strategies, programs, planning and plan of Ministries, sectors and localities
47. To adjust and supply technical standards, design norms for works, based on climate change scenarios
48. To develop mechanism, policy to encourage the participation of economic sectors, professional-socio-economic organizations, non-governmental organizations in activities of climate change response
49. To upgrade community health care systems in the context of climate change
50. To establish model of community responses to climate change
51. To develop a socio-economic development program for island residential areas to effectively respond to climate change and sea level rise
52. To formulate and implement a human resources development program on climate change for qualified and experts
53. To develop and implement educational and training program on prevention of disaster and climate change
54. To formulate and implement a program of communication and awareness raising on climate change and disaster prevention
55. To develop National Target Program to Respond to Climate Change in the period of 2016 - 2020
56. To implement Science and Technology Program serving National Target Program to Respond to Climate Change in the period of 2011 - 2015
57. To formulate National Communications on climate change in 2015 and 2020
58. To identify scientific basis to develop Climate Change Law
59. To update scenario on climate change and sea level rise of Viet Nam, in 2015 and 2020
60. To formulate key National Science and Technology Program on climate change in the period of 2016 - 2020
61. To finalize system of international cooperation law, mechanisms and policy on climate change to mobilize and effectively manage financial sources and advanced technology transfer
62. To identify viewpoints, objectives and strategy of Viet Nam in international negotiations on climate change
63. To implement activities to mobilize international communities, to call on investment in climate change responses
64. To develop an international cooperation program on training of climate change experts and negotiations
65. To cooperate and share information on climate change (especially in the region) in order to implement climate change responses, share information and cooperate in climate change monitoring and related trans-boundary issues

Source: SR Viet Nam (2012b)

Note: The highlighted tasks were priorities for the period 2012-2015

The NAPCC programs, projects and tasks are evidently consistent with the NCCS' strategic tasks. There are many that refer to already existing, approved capacity building and investment programs, which demonstrates how climate change adaptation is closely linked to, for example, disaster risk management and agriculture, and how greenhouse gas emissions mitigation must be achieved in sectors such as energy and forestry. In this sense they are also programs or tasks at a fairly general level. This is somewhat similar to the NTP-RCC although that did not mention many specific (sectoral, existing) programmes (compare for example tasks on energy and agriculture in Table 1.1 and Table 1.4). For all tasks focal units are appointed such as ministries and provincial People's Committees. As the NAPCC refers to the NTP-RCC, there does appear to be some repetition, which can be understood as reinforcement.

Provinces and sector ministries created action plans or similar policy instruments for the implementation of the NCCS, NAPCC and other national climate change policies, approved by the province or ministry concerned. These are available for 5 of the 6 ministries, and 13 of the 29 provinces under review (see overview in Annex 1). The summaries of the sector action plans are given in Table 1.6. The provincial, "localised" action plans are diverse, issued in different years over the past decade with some covering the years to 2015, others to 2020 or 2030; and some focused on forestry or disaster management instead of comprehensive climate change response actions. A summary of common actions found in the provincial APCCs in given in Table 1.5.

Table 1.5 - Provincial Action Plans on Climate Change (2012-2020): Summary of objectives, actions and projects

Common objectives
a) Determine the impacts of climate change and sea level rise on sectors and areas b) Raise awareness of climate change and responses to climate change c) Improve the capacity to forecast climate change and warn for natural disasters d) Strengthen resilience to climate change, ensure sustainable social-economic development, improve quality of life in the context of climate change e) Reduce greenhouse gas emissions, low carbon economy f) Enhance coordination to prevent and limit the impacts of climate change and natural disasters
Common actions and projects
a) Complete, strengthen policies and legal documents to integrate climate change response into socio-economic development strategies, plans and plans of the province b) Upgrade climate change and sea level rise scenarios for locality; assess impact of climate change and sea level rise on localities, infrastructure, irrigation systems, salinity intrusion, etc. c) Build database systems for localities on environmental resources, climate change d) Developing risk maps for localities, re floods, droughts, salinity intrusion, erosion, etc. e) Upgrade hydro-meteorological stations in localities, water quality monitoring system, etc. f) Improve early warning systems, including for flash floods and landslides in mountainous areas g) Set up training to increase capacity to respond to climate change of provincial, district and commune staff h) Set up campaigns, develop materials to increase knowledge and awareness of climate change and responses of students, communities i) Campaigns to promote energy saving, in industry and households j) Sea and river dyke reinforcement, sluice gate construction / upgrading k) Restoration and sustainable development of coastal mangrove l) Enrich forests, protect and improve biodiversity and ecological functions of certain areas m) Construction of erosion prevention (coast line, riverbanks, mountain slopes) n) Breeding varieties of crops and animals adapted to climate change o) Developing models for adaptation and transformation of cropping and farming systems, aquaculture p) Promoting, applying water saving technologies in agriculture q) Construction of water reservoirs in areas affected by drought

r) Urban and rural infrastructure and residential area improvement (clean water and environmental sanitation, transport, electricity grid, drainage and wastewater treatment, and solid waste treatment) in the context of climate change and sea level rise
s) Community development for effectively responding to climate change
t) Build disaster resistant houses, relocate vulnerable and exposed households to safer areas
u) Improve capacity of commune health stations in areas at risk of disasters enhanced by climate change and sea level rise
v) Develop wind power (coastal provinces), solar power (including rooftop), and use waste for energy production
w) Establish, reinforce provincial climate change coordination committee and office capacity
x) Mobilize resources, from the Province, Centre, ODA, private sector

Table 1.6 - Sectoral Action Plans on Climate Change (2012-2020): summary of tasks & actions

MONRE
- Continue implementing key tasks, including assessment of the impact of climate change and sea level rise; build monitoring systems for areas with high risk of flash floods - Develop land use masterplans for key economic regions including adaptation to climate change - Determine changes in land area and quality due to sea level rise, desertification, erosion, etc. - Zoning sea and islands for management and use of natural resources of sea and islands; determine the environmental carrying capacity of each region; mapping geological conditions of the coastal zone - National Greenhouse Gas Inventory, communications to the UNFCCC - Develop plans on exploitation water resources for economic regions in the context of climate change - Develop a system for monitoring climate change and forecasting saline water intrusion - Risk and vulnerability assessment, identification of need for strengthening adaptive capacity and solutions to climate change losses and damages for key economic regions
MARD
- Strengthen climate change response activities in agriculture and rural development through review and improvement of mechanisms and policies; providing information, communication and capacity building - Climate change adaptation and mitigation actions in the sectors of crop cultivation, livestock, aquaculture, forestry, irrigation, salt production, rural development - Climate change response investments in fishery infrastructure, reservoirs, dyke systems, works for natural disaster prevention, estuarine constructions to cope with drought, sea level rise and saline intrusion, and community-based disaster and risk management schemes and develop relocation and resettlement plans for people in areas frequently affected by natural disasters
MOST
- Research on climate change impacts; monitoring climate change and greenhouse gas emissions; measures to adapt to climate change, including agricultural production, industries, cities, rural areas. - Research on natural resources and environment: models and technology in land use planning; solutions for land and water management; information technology, remote sensing, mathematical modelling, forecasting, re water, pollution, (marine) minerals, natural resources, biological resources - Research on integrated and inter-regional climate change responses, natural resources and environment: integrated management of e.g. the Mekong Delta, Red River Delta; functional zoning. - Products of science and technology: mechanisms, policies, technologies, and computational models in climate change response; models integrating climate change in sectoral plans; published scientific works.
MOC
- Review and supplement technical regulations, standards on construction and legislative documents related to climate change and sea level rise issued by construction authorities - Introduce measures for climate resilience to construction industry; research on e.g. anti-corrosion and heat-resistant building materials; infrastructure for dealing with heavy rain, high tide and sea level rise, water supply; survey of urban ground elevation and sea level rise adaptation options - Study mitigation measures in construction, of green cities, infrastructure; energy-efficient solutions and renewable energy; reduction emissions from cement manufacturing and solid waste; re-use of rainwater - Establish policies on training in climate change and sea level rise adaptation, including training documents for construction officials, syllabi of universities, architecture and the construction industry

MOT
- Development of the transport infrastructure system in the direction of improving climate change resilience and reducing environmental pollution - Managing transportation activities in the direction of low emissions, using energy efficiently - Promote environmentally friendly technology; encourage renewable, clean energy in transportation - Perform synchronous implementation of emission control solutions for motor vehicles - Awareness raising for transport enterprises, drivers and road users on climate change and green growth in transportation, with information on e.g. eco-driving, green transport; training courses for civil servants - Strengthen international cooperation and diversify resources to implement climate change response, green growth in transportation activities

Table 1.7 – Viet Nam Green Growth Strategy (2012-2020): Solutions

VGGS - Solutions
1. Communication, awareness raising and encouragement of support to implementation (GG1)
2. Improving effectiveness and efficiency of energy use, reduce energy consumption in production activities, transportation and trade (GG2)
3. Changing the fuel structure in industry and transportation (GG3)
4. Promote effective exploitation and increase the proportion of new and renewable energy sources in the nation's energy production and consumption (GG4)
5. Reduce greenhouse gas emissions through the development of sustainable organic agriculture, improved competitiveness of agricultural production (GG5)
6. Review and adjust master plans for the production sectors and gradually limit the development of economic sectors that generate large amount of waste, significant environmental pollution and degradation of natural resources, while creating favourable conditions for the development of new green production sectors (GG6)
7. Economic and efficient utilization of natural resources (GG7)
8. Promote fast development of green economic sectors to create jobs, increase income and enrich natural capital (GG8)
9. Development of key sustainable infrastructure including: transportation, energy, irrigation and urban works (GG9)
10. Promote technological innovation and wide application of cleaner production (GG10)
11. Sustainable Urbanization (GG11)
12. Develop the new rural model with lifestyles in harmony with environment (GG12)
13. Promoting sustainable consumption and building green lifestyles (GG13)
14. Mobilize resources to implement the Green Growth Strategy (GG14)
15. Human resource training and development (GG15)
16. Study to develop science and technology, issuing a system of economic and technical standards as well as information /data on green growth (GG16)
17. International cooperation (GG17)

Table 1.8 - Green Growth Action Plan (2014-2020): themes, timing, and priorities

	Name /main theme / time for implementation / priority & implementation responsibility
1	Organize the Inter-ministerial Coordinating Board for VGGS / Institutional improvement/ 2013-2015/ High. **MPI, ministries, province PCs**
2	Completing the institutional framework to enhance the economy restructuring process in accordance with VGGS / Institutional improvement/2013-2014/ High. **MPI, MoJ, MoHA, MOF**
3	Formulate the green growth financial policy framework / Institutional improvement / 2013-2014 / High. **MOF, MPI, MoNRE**
4	Raising awareness and involving wide participation of all the people in VGGS implementation / Awareness Raising/ 2013-2015/ High. **MONRE, MOET, MoIC, province PCs**
5	Join international activities for promoting and sharing experiences in green growth implementation / Institutional improvement, Awareness Raising / 2013-2020. **MOFA, MOST, MOIT, MARD, province PCs**
6	Formulate local GGAP in some provinces and cities. Synthesize and Disseminate best practices / Institutional improvement, Awareness Raising / Mid 2014 to 2017/ High. **PCs of provinces and cities**
7	Piloting green growth models in provinces / Institutional improvement, Awareness Raising / 2015-2020. **MPI, province PCs**
8	Implement green growth models in the border and coastal zones as well as islands / Restructuring/ 2015-2020. **MOD, MPI, MONRE**
9	Review and revise the national energy strategy and policies to pursue green growth direction / Institutional improvement / Late 2013-2015/ High. **MOIT, MPI, MOST, MOF**
10	Complete the legal framework for efficient and effective use of energy/ Institutional improvement / 2014-2020. **MOIT, MPI, MOT, MOC, MARD, MOF, MOF**
11	Improve people's awareness on efficient and effective use of energy/ Institutional improvement / 2013-2020. **MOIT, MOET, MoIC**
12	Development of technology and technique for saving energy / Institutional improvement, Restructuring; Technology Innovation/ 2013-2020. **MOST, MOIT, MONRE, MOT, MOC**

	Name /main theme / time for implementation / priority & implementation responsibility
13	Promulgating minimum energy efficiency standards and energy labeling for products / Institutional improvement, Technology Innovation / 2013-2020. **MOIT, MOST, MOT, MOC, MARD, Province PCs**
14	Improve energy efficiency in enterprises in most energy-intensive sectors/ Technology Innovation; Institutional improvement / 2015-2020. **MOIT, MOT, MONRE, province PCs**
15	Improve energy efficiency in small and medium enterprises (SMEs)/ Technology Innovation / 2015-2020. **MOIT, MOST, MOT, MOC, MARD**
16	Improve energy management capacity in industries and constructions / Institutional improvement / 2013-2015/ High. **MOIT, MOC, province PCs**
17	Change the structure for energy efficiency and effectiveness in transportation / Restructuring, Technology Innovation; Institutional improvement / 2014-2020. **MOT, MPI, MOST, MOF, province PCs**
18	Innovating technology to use energy efficiently and effectively in transportation / Technology Innovation; Institutional improvement / 2014-2020. **MOT, MPI, MOST, MONRE, province PCs**
19	Develop public transportation towards greening orientation / Technology Innovation, Restructuring / 2014-2020. **Province PCs, MOT, MPI, MOF**
20	Apply organic cultivation approach and improve management skills to reduce GHG emission / Technology Innovation / 2013-2020. **MARD, MOST, MONRE**
21	Reuse and recycle agricultural by-products and waste / Technology Innovation, Institutional improvement, Restructuring / 2013-2020. **MARD, MOST, MONRE, MPI, MOF, province PCs**
22	Study and widely apply enriched nutritious foods in husbandry to increase the absorbent capacity, reducing GHG emission, enhance quality of clean husbandry products and improve economic efficiency / Technology Innovation, Institutional improvement, Restructuring / 2013-2020. **MARD, MOST, MONRE, MPI, MOF, province PCs**
23	**Forestation, improving forest quality and sustainable forest management/ Restructuring, Institutional improvement / 2013-2020. Province PCs, MARD, MONRE, MPI, MOF**
24	Innovating technologies in aquaculture and aqua products exploitation/ Technology Innovation, Restructuring / 2014-2020. **MARD, MONRE, MPI, MOF, province PCs**
25	Improve energy efficiency and reduce pollution in craft villages and non-agricultural production in rural areas/ Technology Innovation, Restructuring / 2014-2020. **MARD, MONRE, MPI, MOF, province PCs**
26	Formulate and implement policies that give priority to develop clean energy sources/ Institutional improvement/ 2013-2014/ High. **MOIT, MPI, MOST, MONRE, MOF, province PCs**
27	Support R&D for new energy sources (wind, solar, wave, geothermal, biomass, biofuel,..)/ Technology Innovation, Restructuring / 2014-2020. **MOST, MPI, MOIT, MARD, MOF, province PCs**
28	Complete the legal foundation for clean air. Conduct inventory, monitor GHG emissions, and manage mitigation actions/ Institutional improvement / 2013-2015/ High. **MONRE, MOST, MOIT, MOT, MOC, MARD, province PCs**
29	Review and recommend for revision of socioeconomic development master plans under the light of sustainable development and formulate the project to restructure the economy towards green growth for the period 2014-2020/ Restructuring / Late 2013-2014/ High. **MPI, province PCs**
30	Review and recommend for revision of sectoral development master plans under the light of sustainable development and formulate policy framework as well as green growth action plan for the industry sector in the period 2014-2020/ Restructuring / 2013-2014/ High. **MOIT, MPI, MOF, province PCs**
31	Review and recommend for revision of sectoral development master plans under the light of sustainable development and formulate policy framework as well as green growth action plan for the agriculture, forestry and aquaculture as well as rural development in the period 2014-2020/ Restructuring / 2013-2014/ High. **MARD, MPI, MOF, province PCs**
32	Review and recommend for revision of sectoral development master plans under the light of sustainable development and formulate policy framework as well as green growth action plan for the transportation sector in the period 2014-2020/ Restructuring / 2013-2014/ High. **MOT, MPI, MOF, province PCs**
33	Review and recommend for revision of sectoral development master plans under the light of sustainable development and formulate policy framework as well as green growth action plan for the construction sector in the period 2014-2020/ Restructuring / 2013-2014/ High **MOC, MPI, MOF, province PCs**
34	Review and recommend for revision of sectoral development master plans under the light of sustainable development and formulate policy framework as well as green growth action plan for the natural resources and environment sectors in the period 2014-2020/ Restructuring / 2013-2014/ High. **MONRE, MPI, MOF, province PCs**
35	Review development strategy and master plans for science and technology under the light of sustainable development and formulate policy framework and action plan for developing science and technology to meet the demand of the economy for green growth in the period 2014-2020/ Restructuring / 2013-2014/ High. **MOST, MPI, MOET, province PCs**
36	Support and encourage R&D for applying green technology / Technology Innovation, Institutional Improvement/ 2013-2020/ High. **MOST, MOIT, MOT, MOC, MARD, MONRE, province PPCs**
37	Improve the institutional arrangement and capacity of financial and credit activities of commercial banks to promote green growth/ Institutional Improvement, Capacity building/ 2013-2020/ High. **State Bank VN, MOF**
38	Support to develop human resources for green job / Capacity building, Institutional Improvement/ 2013-2020. **MOLISA, MOIT, MOC, MOT, province PCs**
39	Against land degradation and sustainably efficient use of land resources / Institutional Improvement/ 2013-2014/ High. **MONRE, province PCs**
40	Sustainably efficient use of water resources/ Institutional Improvement / 2013-2014/ High. **MARD, MOST, MONRE, MPI**
41	Sustainably efficient use of minerals / Institutional Improvement / 2013-2014/ High. **MOIT, MONRE, MOST, MPI**
42	Encouraging and supporting rapid development of ecoproducts manufacturing industries / Restructuring, Institutional Improvement / 2013-2014/ High. **MONRE, MARD, MOIT, MPI, province PCs**

	Name /main theme / time for implementation / priority & implementation responsibility
43	Widely apply cleaner production approach in industry / Technology Innovation, Institutional Improvement / 2013-2020. **MOIT, MOST, province PCs**
44	Develop eco-tourism / Restructuring, Institutional Improvement/ 2013-2020. **MoCST, MPI, MARD, province PCs**
45	Promote reuse and recycle waste in the country / Restructuring, Institutional Improvement/ 2013-2020. **MOIT, MONRE, MOST, MOC, province PCs**
46	Promote the production of environment goods and services / Restructuring, Institutional Improvement / 2013-2020. **MOIT, MONRE, MOST, MOC, MARD, province PCs**
47	Restoration and development of natural capital resources / Institutional Improvement / 2013-2015/ High. **MONRE, MOST, MPI, MOF, province PCs**
48	Improve transportation infrastructure towards sustainable development/ Institutional Improvement, Technology Innovation/ 2013-2020. **MOT, MPI, MOST, province PCs**
49	Improve energy infrastructure towards sustainability / Technology Innovation / 2013-2020. **MOIT, MPI, MOST, province PCs**
50	Improve and develop irrigation infrastructure towards sustainability / Technology Innovation, Institutional Improvement / 2013-2020. **MARD, MONRE, MPI, MOF, province PCs**
51	Widely implement the campaign "Enterprises achieving sustainable development standards"/ Institutional Improvement, Awareness Raising/ 2013-2020. **MPI, MOIT**
52	Build capacity for technical and management of green growth; promoting consultancy and assistance activities for enterprises to implement cleaner production; developing the network of technical- managing services organizations and services market for green growth/ Institutional Improvement / 2013-2020. **MPI, MOIT**
53	Raise awareness enterprises and share domestic and international experiences on green growth / Awareness Raising / 2013-2020
54	Review and recommend for revision of urban master plans and formulating urban innovation plans according to sustainable standards / Institutional Improvement/ 2013-2020. **MOC, province PCs**
55	Improve technical infrastructure in some selected urban areas / Technology Innovation/ 2013-2020. **MOC, MPI, MOF, province PCs**
56	Technique and technology innovation in construction towards greening orientation/ Technology Innovation, Institutional Improvement/ 2013-2020. **MOC, MOF, province PCs**
57	Encourage the development of green building and construction material industries/ Technology Innovation, Institutional Improvement, Restructuring/ 2013-2020. **MOC, MPI, MOF**
58	Efficient and effective use of energy in constructions and buildings/Technology Innovation, Institutional Improvement/ 2013-2020. **MOC, MPI, MOF, MOST, MONRE, province PCs**
59	Improve transport in municipalities with the sustainable orientation/ Restructuring/ 2013-2020. **Province PCs, MOT, MPI, MOF**
60	Greening urban landscape / Restructuring, Awareness Raising/ 2013-2020. **Province PCs, MONRE**
61	Implement campaign "Green lifestyle"/ Awareness Raising, Institutional Improvement / 2013-2020. **MoCST, MOET, province PCs**
62	Implement the campaign on building a model of "Energy saving in each household"/ Awareness Raising, Institutional Improvement/ 2013-2020. **MOIT, MONRE, MARD, MOST, province PCs**
63	Develop new rural model with lifestyle in harmony with environment / Institutional Improvement, Technology Innovation, Restructuring/ 2013-2020. **Province PCs, MARD, MONRE, MOC, MOH**
64	Public expenditure by green standards / Institutional Improvement / 2013-2020. **MOF, MPI, MONRE**
65	Guide and encourage sustainable consumption initiatives in by the people/ Institutional Improvement, Awareness Raising, Restructuring/ 2013-2020. **Province PCs, MOF, MOIT, MARD, MONRE, MOH**
66	Quickly expand the modern information technology application in the management and social life / Institutional Improvement, Technology Innovation/ 2013-2020. **MoIC, province PCs**

Table 1.9 - Sectoral Green Growth Action Plans (2015-2020): headlines

MARD (Decision 923/QD-BNN-KH of 24/03/2017) (2017-2020)
1. Apply organic farming techniques and improve management skills to reduce greenhouse gas emissions (Activity No. 20 of the NTP)
2. Reuse, recycling agricultural by-products and waste (activity No. 21 of the National Action Plan)
3. Research and apply popularizing nutritious foods in the livestock industry to increase the absorption and reduce greenhouse gas emissions, increase the quality of clean livestock products and improve economic efficiency (activity No. 22 of the National Action Plan)
4. Afforestation, improve forest quality and manage forest resources sustainably (activity No. 23 of the National Action Plan)
5. Innovating technology in fishing, aquaculture and processing aquatic products (activity No. 24 the National Action Plan)
6. Improve energy efficiency and reduce pollution in craft villages and production activities in the rural non-farm (activity No. 25 the National Action Plan)
7. Reviewing proposals to adjust the masterplan for development of agriculture and forestry, fisheries from the perspective of sustainable development. (Activity No. 31 of the National Action Plan)
8. Sustainable improvement and development of irrigation infrastructure (Activity No. 50 the National Action Plan)
9. Building a new countryside with a lifestyle in harmony with the natural environment (Activity No. 63 of the National Action Plan)

10. Promote the application of information technology and increase communication for green growth activities.

MONRE (Decision 965/QD-BTNMT of 23 April 2015)

1. Establish the policy framework for the green growth provided for by natural resources and environment authorities for the period 2016-2020 (2015-2020; Viet Nam Environment Administration; Departments of Natural Resources and Environment in cities or provinces)
2. Design the scheme for protecting environment at the national level and the level of centrally affiliated cities and provinces (2016-2020; Viet Nam Environment Administration; Departments of Natural Resources and Environment in cities or provinces)
3. Formulate the proposal to mobilize resources for the work of environmental protection (2015-2020; Viet Nam Environment Administration; Department of Planning; Department of Finance; Departments of Natural Resources and Environment in cities or provinces)
4. Outline the proposal to manage and control urban environmental pollution by 2020 (2015-2020; Viet Nam Environment Administration; Department of Planning; Departments of Natural Resources and Environment in cities or provinces)
5. Conduct research into enforcement of rules and regulations on public green spending to be applied to the administration of natural resources and environment (2016-2020; Department of Finance; Viet Nam Environment Administration, Department of Planning; Departments of Natural Resources and Environment in cities or provinces)
6. Research and organize activities to carry out the pilot application of granting of quotas for surface and underground water exploitation in specific regions (2016-2020; Department of Water Resources Management; Viet Nam Environment Administration; Departments of Natural Resources and Environment in cities or provinces)
7. Check and set up the database on natural capital sources (2017-2020; Institute of Strategy and Policy on Natural Resources and Environment; Department of Information Technology; Departments of Natural Resources and Environment in cities or provinces)

MOIT (Decision 13443/QD-BCT of 8/12/2015)

Targets for emission reduction in the industry sector:

+ Reducing the intensity of greenhouse gas emissions in the industry and trade by 8-10% compared to 2010 levels;
+ Reducing energy consumption per unit of product from 1 - 1.5% per year.

Targets to reduce greenhouse gas emissions in some areas:

+ Reduce greenhouse gas emissions in coal-fired thermal power by 10% to 20% compared with normal development plans. In which the voluntary rate is 10%, the extra striving rate with international support is 10%;
+ Reduce greenhouse gas emissions in the field of chemical fertilizer production from 9% to 15% compared to the normal development plan. In which the voluntary rate is about 9%, the level of striving with international support is 6%;
+ Reducing greenhouse gas emissions in the steel manufacturing sector: from 10% to 20% compared to the normal development plan. In which the voluntary rate is about 10%, the extra striving rate with international support is 10%.

Greening production: Restructuring and adjusting industrial development plans in line with green growth and sustainable development; to step up the application of cleaner production, improve the efficiency of energy and resource use, actively innovate technologies, use high, clean, environment-friendly technologies in industrial production; to strive to achieve the following by 2020:

+ The value of products in the high-tech and green-tech industries in industrial and commercial production will be 42-45%;
+ The rate of production and business cases meeting environmental standards is 80%
+ The rate of establishments applying cleaner production reaches 50%
+ Proportion of production value of industries supporting environmental protection and natural capital enrichment reaches 3 - 4% of total industrial production value.

MOC (Decision 419 / QD-BXD of 11/05/2017)

I. Review and recommend adjustments to construction planning from a sustainable development perspective
II. Review and recommend adjustments to urban planning and urban improvement planning according to sustainable urban standards
III. Sustainable technical infrastructure improvement in selected cities

IV. Innovating technology and construction techniques towards greening
V. Encourage the development of industrial building materials and green construction
VI. VI. Using energy economically and efficiently in construction

Table 1.10 - Provincial Green Growth Action Plans (2014-2020): objectives, actions and projects

Common objectives
a) Pursue **green growth**, sustainable socio-economic development while reducing **greenhouse gas emissions**, restructuring the economy, greening production, job creation, and poverty reduction b) **Greening production**: promoting economic sectors to use advanced technologies; efficiently use land and water resources and increase resilience to climate change; encouraging the efficient use of energy and other resources and reducing intensity of raw materials, strengthening conservation c) **Greening lifestyles** and promoting sustainable consumption while enhancing climate change adaptation, improve waste and wastewater treatment, reuse and recycling
Common actions and projects
a) Develop the legal system for green growth: Formulate provincial plans, projects for green growth; develop regulations, roadmaps for public spending according to green economic standards; urban/ architecture management regulations; build links between research institutes and industrial and agricultural production establishments; build a certification system for local green products; develop sanctions to prevent industrial pollution; develop regulations on the protection, management and use of natural resources. **b) Raise awareness, encourage green production and lifestyles:** television and radio programs, school curricula and awareness raising of people and communities on e.g. significance of energy saving, land, forests, sea and river water resources, environmental protection, climate change and natural disasters; and create conditions for social organizations and people to participate in or support environmental protection and use of natural resources **c) Green production, innovation, cleaner production**: formulate strategy; build capacities of management agencies, enterprises and industrial production base (e.g. development and application of technologies for recycling and reuse, energy efficiency, reducing material inputs, cleaner production); promote renewable energy production (solar, wind, biomass based) with private investment **d) Sustainable Urbanization:** adjust urban masterplans to aim for building green cities and green buildings; urban spatial planning for eco-economic efficiency; efficient public transport; improved water supply, waste and wastewater management, energy efficiency in households and industry, improve green space and water surface areas of urban areas. **e) Building new countryside with a lifestyle in harmony with the environment:** planning rural development for higher living standards, protecting landscapes and green, clean, beautiful and civilized environment; improve rural waste management, using waste for energy, promoting improved wood stoves and biogas, producing organic fertilizers and construction materials; develop suitable housing models; reservoirs, water supply systems; improve protection with e.g. sea dikes and mangrove planting, prevention of land slides f) **Sustainable agriculture, aquaculture and forestry development, enhancing competitiveness**: reduction of GHG emissions e.g. through rational use of water resources in agricultural production, organic farming, reuse of by-products and waste from agricultural production, planting production forests, protecting special-use forests, conserve biodiversity in protected areas. g) **Promote sustainable consumption and building green lifestyles:** disseminate information about environmentally friendly products such as solar water heating, LED lights, and inverter air-conditioners; encourage businesses to limit waste of energy and the use of coal and electricity, recover excess heat; promote the use of electric vehicles, biofuel in transport; promote green tourism, build pilot models of eco-friendly tourism

1.3.4 Viet Nam Green Growth Strategy (2012) and action plans, and related policies

The Viet Nam Green Growth Strategy (SR Viet Nam, 2012a) and national Green Growth Action Plan (GGAP) for the period 2014-2020 (SR Viet Nam, 2014) were approved slightly after the NCCC and NAPCC, and they were also followed by sectoral and provincial action plans with some specifics.

The NCCS focused on adaptation though it also includes mitigation actions, whereas the VGGS stresses mitigation actions and low-carbon, green growth. The low-carbon green growth approach in the GGAP provides potential virtuous circles, increasing access to energy for the poor, creating green jobs and boosting the economy, while reducing GHG emissions. The VGGS also has objectives re green

production, efficient use of natural resources and green lifestyles, such as a “new rural model with lifestyles in harmony with the environment”. The VGGS includes 17 “solutions” (see Table 1.7), which are used in Chapter 5 in the analysis of budget-policy links. It prioritised renewable energy and energy efficiency, and proposed more efficient use of natural capital, reduction of GHG emissions and an improvement in environmental quality. The GHG emissions mitigation targets in the VGGS have been absorbed and unified with other targets in Viet Nam’s INDC (section 1.2.3).

The Green Growth Action Plan (GGAP) presents 66 activities, which are grouped under four themes: (1) Institutional improvement and formulation of green growth action plans at the local level; (2) Reducing GHG emissions intensity and promoting the use of clean and renewable sources of energy; (3) Greening production; and (4) Greening lifestyle and promoting sustainable consumption. The priority activities included formulating a green growth financial policy framework (see Table 1.8).

With international support, several Nationally Appropriate Mitigation Actions (NAMA) were formulated in the years since issuing the VGGS. NAMAs offer opportunities for technology transfer and partial international financing and have been developed in Viet Nam, requiring major efforts on monitoring and reporting on emissions. Formulation of NAMAs and systems for monitoring, reporting and verification (MRV) of emissions has been supported by several international DPs.

Viet Nam has progressed with REDD+ policy formulation and implementation. Harmonization with both forestry sector and mitigation policy and targets has taken place. REDD+ in Viet Nam is governed by the National Action Program on REDD+ 2011–2020 (SR Viet Nam, 2012d; and SR Viet Nam, 2017c). This is a key programme also referred to in the NCCS. Substantial international finance for REDD+ implementation has been granted to Viet Nam in the past decade. It has also been linked to national regulations on payments for forest environmental services (PFES) by for example enterprises that generate hydro-electricity, with revenues allocated to e.g. local forest managers.

With the “Plan for GHG emissions management” (SR Viet Nam, 2012e) Viet Nam started to regulate carbon offsets as enabled by the Clean Development Mechanism (CDM) under the UNFCCC’s Kyoto Protocol, and prepare to apply market-based instruments also within Viet Nam. Viet Nam has participated quite substantially in CDM offsets through the past decade, as new mechanisms are being developed under the Paris Agreement. This is aiming to support technology and financial transfers, especially to local enterprises that take responsibility for reducing emissions. Monitoring of GHG emissions is critical for the success of NAMAs, REDD+ and CDM or similar carbon market mechanisms, and with international support monitoring capacity has increased.

The VGGS was also localised in provinces and applied to some sectors – it was available for four of six ministries and 13 of the 29 provinces here under review (see Annex 1). The summaries in Table 1.9 and

Table 1.10 show that these action plans cover the same ground as the VGSS but for sector- and locally-specific aspects.

1.3.5 Plan for Implementation of the Paris Agreement

The *Plan for Implementation of the Paris Agreement* (PIPA) was issued in 2016 and incorporates the INDC that Viet Nam had issued to the UNFCCC in 2015 and consequent actions required by different sectors and localities, including both public and private sector, as well as other commitments that Viet Nam made under the Paris Agreement. The PIPA Tasks on adaptation and on GHG emissions mitigation to 2020 are listed in Table 1.11, highlighting which tasks pertain to which stakeholder. The PIPA tasks with responsibilities of provincial authorities were also reflected in localised action plans (available for 20 of 29 provinces) (see Annex 1).

The PIPA tasks are of a very general nature and consistent with both the commitments made in the INDC and in earlier green growth and climate change action plans in different sectors, such as Task 6 (under mitigation in Table 1.11) "*Implementation of GHG mitigation activities in industrial and trade sectors to implement NDC*"; and Task 22 (under adaptation in Table 1.11) "*Assess risks and vulnerability, determine adaptation needs and needs to address loss and damage (L&D) issues".* The PIPA tasks and those in sectoral and localised action plans are important policy statements, but do not have a formal role in the budgeting process as described in section 1.5.

As discussed in section 1.2.3, for the period after 2020 Viet Nam submitted the updated NDC to the UNFCCC in 2020 (SR Viet Nam, 2020b). This will mean that PIPA commitments for that period are expected to be adjusted as well (Tasks for the period 2021-2030 are in PIPA but not listed in Table 1.11). This is not relevant to the budgets analysed here, as is the case for the contents of the National Adaptation Plan (NAP) for the period from 2021 that was also issued in 2020 (SR Viet Nam, 2020c). However, the latter is an example of a commitment as per Task 18 in Table 1.11, which has thus been completed and could possibly be reflected in budget data analysed for the period 2018-2020. PIPA has also been followed by a sectoral PIPA in one ministry, MARD, reflecting its specific responsibilities.

Table 1.11 - PIPA: Tasks during 2016 – 2020

No.	Task	Type
Mitigation of Greenhouse Gas Emissions		
1	Implement GHG inventory and periodic assessment of Viet Nam's efforts in mitigation of GHG emissions to update NDC and take stock of the global stocktake in 2018. **MONRE, MPI, MOIT, MOT, MOC, MARD, localities.**	**COMPULSORY (**as required by COP21 and Clause 2 of Article 41 of Law on Environment Protection in 2014)
2	Develop, complete and revise policies to encourage development of solar energy, wind energy projects; Implement action plan of the renewable energy development project to 2030, with vision to 2050. **MOIT, MONRE.**	**PRIORITY for continuation (**based on relevance to the Paris Agreement and other existing laws and policies)
3	Review existing regulations and develop a Decree on the roadmap and modality for Viet Nam's participation in global GHG emission mitigation. **MONRE.**	**COMPULSORY (**as required by the Paris Agreement and Article 48 of the 2014 Law on Environmental Protection)
4	Establish and develop a domestic carbon market and other mechanisms on cooperation in GHG mitigation pursuant to Article 6 in the Paris Agreement; Pilot implementation in potential sectors. **MONRE, MOF, MPI, MOT, MOIT, MARD, MOC**	**PRIORITY (**to prepare for NDC implementation in the post-2020 period and to mobilize international support).
5	Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors. **MOIT, MOT, MOC, MARD, People's Committees**	**PRIORITY for continuation** based on relevance to the Paris Agreement and other laws, policies
6	Implementation of GHG mitigation activities in industrial and trade sectors to implement NDC. **MOIT.**	**ENCOURAGING for implementation**

No.	Task	Type
		(to use the opportunities presented by the Paris Agreement)
7	Implementation of GHG mitigation activities in transportation sector to implement NDC. **MOT.**	**ENCOURAGING for implementation** (to use the opportunities presented by the Paris Agreement)
8	Implementation of GHG mitigation activities in construction sector to implement NDC. **MOC.**	**ENCOURAGING for implementation (**to utilize the opportunities presented by the Paris Agreement)
9	Implementation of GHG mitigation activities in agricultural and rural development sectors to implement NDC. **MARD.**	**ENCOURAGING for implementation (**to utilize the opportunities presented by the Paris Agreement)
10	Implementation of other Nationally Appropriate Mitigation Actions. **Ministries, localities, enterprises.**	**ENCOURAGING for implementation (**to utilize the opportunities presented by the Paris Agreement)
Climate Change Adaptation - Tasks during 2016 – 2020		
17	Update the contribution to climate change adaptation in the NDC for the periodic global stocktake. **MONRE, MARD, MPI, MOF, MOC, localities.**	**COMPULSORY (**as required by the Paris Agreement)
18	Develop National Adaptation Plan (NAP). **MONRE, MARD, other ministries, localities.**	**COMPULSORY (**as required by the Paris Agreement)
19	Review available information and data on adaptation, loss and damage, propose additional research and information and methods of data management and sharing to facilitate the development and update of adaptation component in the NDC report. **MONRE, MARD, other ministries, localities, insurance agencies.**	**PRIORITY for implementation**
20	Assess risks and vulnerability, determine adaptation needs and needs to address loss and damage (L&D) issues. **MONRE, MARD, MOH, MOLISA, MOF, MPS, VASI and insurance agencies.**	**COMPULSORY (**as required by the Paris Agreement and Article 17 of Law on Natural Disaster Prevention and Control)
21	Implement National Target Program to Respond to Climate Change and Green Growth. **MONRE, MPI, MOF, MARD, MOT, MOIT, People's Committees.**	**PRIORITY** (as identified in Resolution No.73/NQ- CP of 26/08/2016 by the Government)
22	Implement National Target Program on Sustainable Development of Fishery. **MARD, MPI, MOF, other ministries, People's Committees.**	**PRIORITY** (as identified in Resolution No.73/NQ- CP of 26/08/2016 by the Government)
23	Implement National Target Program on Sustainable Development of Forestry. **MARD, MPI, MOF, other ministries, People's Committees.**	**PRIORITY** (as identified in Government Resolution No.73/NQ- CP of 26/08/2016)
24	Implement National Target Program on Agricultural Restructuring and preventing and controlling natural disasters to stabilize the people's lives. **MARD, MPI, MOF, other ministries, People's Committees**	**PRIORITY** as identified in Government Resolution No.73/NQ- CP dated 26/08/2016
25	Implement other activities related to adaptation to climate change to enhance resilience, protect people's livelihood, establishing a basis for further contribution to GHG mitigation. **MARD, MPI, MOF, other ministries, People's Committees**	**ENCOURAGING for** implementation (approved projects that secured resources or deploy the contents of Government Resolution No. 63/NQ-CP of 22/07/2016 and Resolution No.73/NQ- CP of 26/08/2016 but not included in Task No.17 – 24)

Source: SR Viet Nam (2016)

1.3.6 Use of the Climate Change and Green Growth Policies and Plans in Budget Analysis

Above the contents of the main climate change and green growth policies were summarised, which must have affected provincial and sector budget allocations. The localised and sectoral APCCs and GGAPs as well as PIPA is assumed to have impact on annual recurrent and investment budget allocations, including from ODA, such as under the Support Programme to Respond to Climate Change (SPRCC). The policies are assumed to inform the annual budget request and investment proposals of different units of the national ministries and provincial departments. Thus, in collecting data on climate change expenditure as reported in chapters 3 and 4 and the folios in Annex 2, 3 and 4, certain program or project allocations must be quite apparent, even names of projects and programmes may sometimes have been identifiable from financial data. However, the exact route from policy to budget allocation is not clear. This will be partly shown in the data collected for this CPEIR and analysis of the links between policies and public expenditure trends that is presented in chapter 5.

1.4 Governance of Climate Change and Green Growth

1.4.1 Institutions for coordination of climate change and green growth responses

Coordination of climate change and green growth policy formulation and responses is primarily by the National Committee on Climate Change (NCCC), which is led by the Prime Minister and has a Deputy Prime Minister and the Minister of MONRE as first and second Vice Chairs. MONRE and MPI are the two agencies responsible for coordinating the development of climate change and green growth policies and actions. The Central Committee for Flood and Storm Control (CCFSC) is also chaired by the Prime Minister, and touches on issues relevant to climate change adaptation and Loss & Damage (L&D). Both national committees are and have representation at the highest level of relevant ministries. The NCCC has a standing office managed in MONRE's Department for Climate Change (DCC), and the CCFSC in MARD's Viet Nam Disaster Management Authority (VDMA). At the provincial level, these committees have equivalents and administrative support capacity, through climate change coordination offices and CFSCs.

In addition, there are (lower level) mechanisms on other themes that have been created and that function for some or all of the period concerned in the CPEIR analysis of 2011-2020. For example, a mechanism on REDD+ (within MARD, engaging provincial and other national stakeholders as well as international agencies), and the Viet Nam Energy Partnership Group that was created in 2018 for coordination and policy dialogue in the energy sector. The latter is concerned about Sustainable Development Goal (SDG) nr.7 on access to sustainable energy for all, which includes a target for clean energy and is thus highly relevant for GHG emissions reduction and green growth.

The NCCC, CCFSC or the other coordination mechanisms do not have formal roles in budgeting processes, but their core functions matter indirectly. The NCCC and CCFSC initiate certain policy formulation processes, for example the NCCC mandated MONRE to coordinate the formulation of PIPA, and they decide certain policy matters. They and the lower-level mechanisms all aim to ensure good coordination and they enable policy dialogue and information exchange.

The leaders represented and the stakeholders involved in the NCCC and CCFSC are somewhat different as their focus areas may be more or less important to certain sector ministries. The NCCC has convened several high-level meetings for exchanges with leaders of the international community as well, in particular concerning the SPRCC which goes through cycles in which policy actions must be agreed that trigger disbursements of concessional loans. The SPRCC has been the most important source of the ODA identified in budgets in this CPEIR (see section 1.4.3 on the SPRCC). Line ministries such as the Ministry of Labour, Invalids & Social Affairs (MOLISA) as well as the Women's Union are formally represented in the CCFSC, amongst several other ministries, but those do not participate in the NCCC. They are also active in the provincial CFSCs in association with Search & Rescue Committees, which develop and annually update action plans on disaster risk management (DRM).

Line ministries and provinces report to the NCCC on progress with implementation of policies such as the Climate Change Strategy, Green Growth Strategy and PIPA, and related action plans. Such reports are consolidated into reports by the Standing Office for submission to the NCCC. The capacity of the Standing Office is being supported by some international agencies, also in the context of the SPRCC coordination. It must be strong in the context also of international requirements for "transparency" and reporting to the UNFCCC, with competent monitoring, reporting and verification (MRV) systems and practices.

1.4.2 Climate Change Planning Processes at the National and Provincial Levels

The NCCS and VGGS have been instrumental in the process of developing climate change policy in specific sectors and are reflected in the five yearly and annual Social Economic Development Plans (SEDPs). The SEDPs are particularly important for determining budgets in the budget cycle (see section 1.5), and they are partially based on strategies such as the NCCS and VGGS and related national action plans. The SEDP (2011–2015) identified climate change mainly in terms of adaptation and linked it to extreme weather events and environment. The SEDP 2016–2020 climate change related priorities include adaptation aims and actions, for example on water management, and emissions mitigation in e.g. the energy and forestry sectors. SEDPs are also helping the mainstreaming of climate change in sector and provincial plans. The forthcoming SEDP (2021-2025) will undoubtedly be influenced by priorities set in the PIPA and in the updated NDC (see section 1.3). For priority-setting and integrating climate change and green growth in SEDP formulation, MPI has issued the Adaptation Prioritization Framework (APRF) (MPI, 2013). The APRF was designed to incorporate relevant climate change adaptation actions into project design, which is to some extent reflected in the SEDP (2016-2020). For the period from 2020 adaptation priorities will be determined by the National Adaptation Plan that was approved by the Prime Minister in July 2020 (SR Viet Nam 2020c).

Strategic and efficient ways of increasing resilience often require integrated programmes, including central, regional and provincial programmes. There are many sectoral and provincial masterplans that include medium- and long-term investment proposals with high relevance for climate change adaptation and mitigation. Regional plans with budgets hardly exist as the regions are not an administrative layer in Viet Nam so regional plans do not play a role in the climate expenditure analysis through the period 2010-2020. But the Mekong Delta region, for example, is highly vulnerable to sea-level rise, associated saline water intrusion, etc., and responses require cooperation between provinces and sectors. Regional policies have been developed, including Government Resolution 120 on “Sustainable and Climate-Resilient Development of the Mekong Delta” (SR Viet Nam, 2017b), which will have had some effect on subsequent budget allocations as ministries and provinces formulated actions according to the responsibilities given in Resolution 120; Resolution 120 is particularly strong on climate change adaptation. The implementation of Resolution 120 was reported in 2019 (MONRE, 2019), and included initial progress (by the collective of ministries and provinces) with: mechanisms for promoting sustainable, safe agriculture, transport infrastructure, stabilizing urban population; surveys and monitoring, scientific and technological research; regional planning and connectivity; preventing land subsidence, river bank and coastal erosion; connectivity; training, awareness raising; and mechanisms to attract private capital.

But addressing the issues in the Mekong Delta region requires better coordinated efforts by multiple sector ministries and across provincial boundaries. Regional structures with a role in cross-provincial initiatives are being gradually created and strengthened, in particular with the imminent approval and implementation of the Mekong Delta (integrated) Regional Masterplan according to the Law on Planning of 2017, the first such regional masterplan in Viet Nam. This will have a budget estimate attached, with costs of regional investment proposals, and a financial mechanism. According to the Law on Planning, national sectoral masterplans and provincial (integrated) master plans for the period from 2021 onwards (2021-2030, with a longer-term outlook) are also being formulated, in parallel. The national sector masterplans include several with high relevance to climate change adaptation, such as masterplans on hydraulic work (“irrigation”, including dikes, flood, salinity and drought management), and GHG emissions mitigation such as the national Power Development Plan.

Policy formulation and financing at the national level is coordinated by the NCCC and standing office and at the local level by provincial People's Committees and climate change support offices (see section 1.4.1). Budget planning must ensure effective climate change and green growth policy implementation. As demonstrated in section 1.3, national climate change and green growth policies are usually followed by equivalent sectoral action plans and locally relevant provincial plans. These must affect ministerial and provincial budgeting, whereas some sector and province budgets are funded through specific (national) mechanisms such as the NTP-RCC and/or ODA funds made available under the SPRCC (see section 1.4.3). But the links between all these strategies and action plans on climate change and green growth and actual budgets are not straightforward as funds are scarce and many other themes and sectors are making budget proposals too. The climate change and green growth strategies and action plans appear to be merely a set of arguments in favour of certain budget proposals by ministry (departments) and provinces within the formal budgeting process as described in section 1.5.

1.4.3 Support Programme to Respond to Climate Change (SPRCC) and other climate-ODA

The NTP-RCC was funded in part by Denmark, through a grant in the first phase from 2009. All NTP-RCC phases also received soft loans from the Support Programme to Respond to Climate Change (SPRCC), a budget support programme initiated by Japan (JICA) and France (AFD), joined later by the World Bank (with IDA credits) and some other donors (CIDA, AusAID, and the Export-Import Bank of Korea).

Throughout the SPRCC lifetime from 2009, Development Partners (DPs) and the Government annually agreed on climate change related policy actions, which upon delivery trigger loans to the national budget. This targeted the NTP-RCC as well as (additional) activities under the National Climate Change Strategy (2011) and Green Growth Strategy (2012) and related action plans that are discussed in sections 1.3.3 and 1.3.4, including investments in e.g. coastal defence and salinity control works.

The SPRCC's institutional structure was initially linked to that of the NTP-RCC but later a Program Coordination Unit was created, based in the Department of Climate Change (DCC) in MONRE. The SPRCC was also intended to support coordination and dialogue between the Government and international DPs, but with limited success in this regard (Ecorys, 2018).

The latest budget support operation by the World Bank is USD84.4 million "development policy credit" by the World Bank's IDA on "Climate Change and Green Growth Development Policy Financing" approved in April 2020 (World Bank, 2020).

The SPRCC has been the main international climate finance mechanism in Viet Nam, although not the only one. The Global Environment Facility (GEF, an operating entity of the UNFCCC's financing mechanism) and the GEF-managed Special Climate Change Fund have funded adaptation and mitigation projects in Viet Nam in the period to 2020. The Green Climate Fund (GCF) (also an operating entity of the financial mechanism of the UNFCCC) has funded projects in the last few years, notably through the World Bank and UNDP. The EU has provided large scale grant funding to the energy sector, through a budget support mechanism, with objectives including the encouragement of renewable energy deployment and energy efficiency improvement. Other international climate finance (grants or loans) comes from multilateral and bilateral donors as well as NGOs, including funds for implementation of REDD+ in Viet Nam.

1.5 Development planning and budgeting system

Viet Nam's administrative system consists of the central, provincial, district and commune levels, of which the last three administrative levels are collectively called local authorities. The four administrative levels correspond to four state budget levels. However, the characteristic of the state budget management system in Viet Nam is an integrated system (or so-called Matryoshka doll model), in which the state budget consists of the central budget and the subnational budget (also called provincial budget). The central budget is allocated to sector ministries under the central administrative apparatus. The provincial budget consists of province-level budget (which is allocated to provincial sector departments) and the district budget. The district budget consists of the district-level budget (which is allocated to district sector-divisions and units) and the commune budget (also called commune-level budget). Figure 1.5 describes the integrated state budget system in Viet Nam.

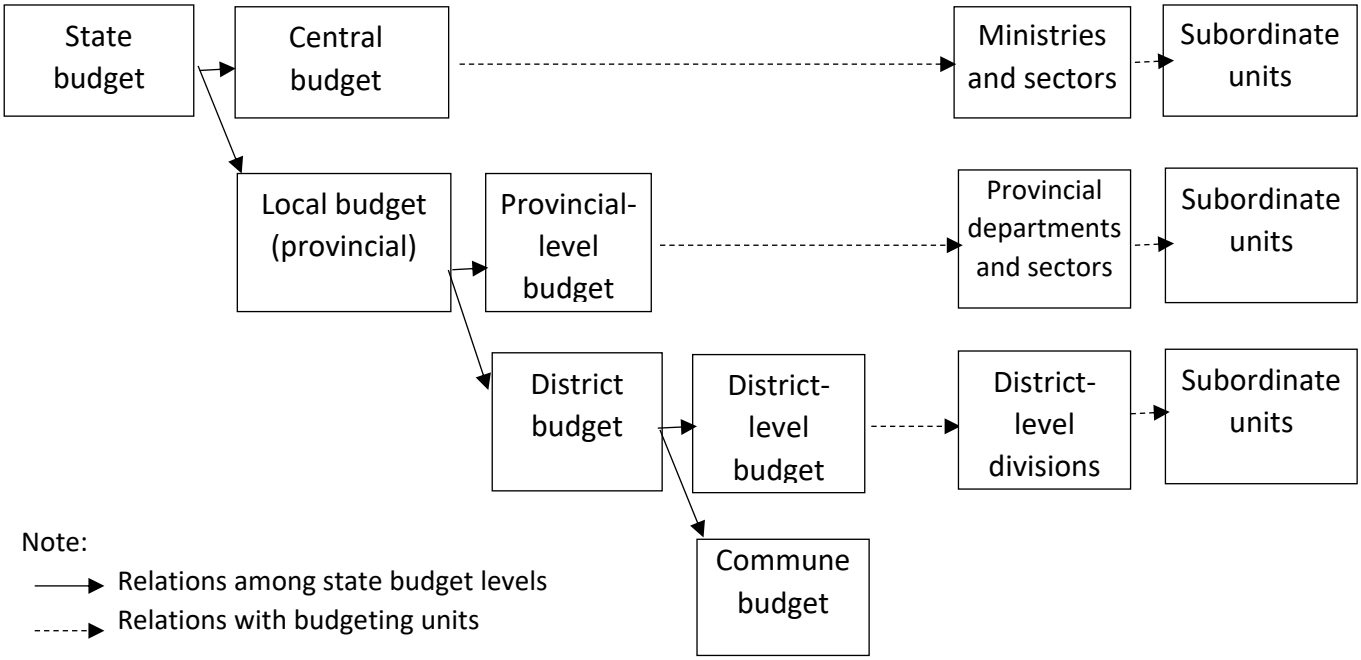


Figure 1.5 – Simplified diagram showing the Integrated budget system of Viet Nam

The (recurrent) budget of each government level consists of two main sources of revenues: entitlement budget revenues (including 100% retained revenue and shared revenue, which is shared with the higher government levels) and transfer from the higher government levels. For example, the provincial budget will receive transfer from the central government in two forms: balancing transfer and targeted transfer. If balancing transfer is a form of state budget (provincial budget support) that a province can decide how to allocate among its expenditure assignments, targeted transfer is targeted support programs or national targeted programs, which is earmarked for predefined spending purposes and objectives of the programs.

The list of NTPs is determined only at national level on a five-year basis which coincides with the period for the 5-year SEDP period. Usually, total funding requirement for the entire NTP pipeline is provided, but in very tentative manner without any binding commitment to actual budget allocation. For most NTPs, the annual budget disbursement plan is absent. In reality, budget allocation for each NTP is determined on annual basis at a very late stage in the planning and budgeting process and does not

follow any predictable principles. Funding for each NTP is channelled to provincial budgets for implementation but is centrally managed by sector ministries.

1.5.1 Provincial Budgeting and Planning

The Steps in the Budget Preparation and Approval Process

The budget preparation process starts in May and ends in December as presented in Figure 1.6.

Step 1: Budget preparation guidance from national levels. In May of each year, the Prime Minister issues a Directive concerning the preparation of the annual socio-economic development plan (SEDP) and the State budget for the following year. This Directive sets out the broad framework for the SEDP and budget, as well as establishing the specific calendar for the rest of the process and the responsibilities of each ministry and province. The Directive establishes the key objectives of the SEDP. More detailed guidance on the PM's Directive is subsequently given by the MPI and the MOF with respect to SEDP and State budget, respectively.

To make transfers between higher to lower levels of government more predictable, a multi-year 'stability period' is established. Although the State budget is prepared on an annual basis, aggregate revenues and transfers are determined for the first year of the budget stability period and are used, with technical adjustment only, throughout this period. The stability period lasts 3 to 5 years.

At the central level, detailed directions for budget estimation are promulgated by the PM in two separate decisions: i) the cost norms for recurrent expenditure; and ii) the principles, criteria and norms for allocation of capital expenditure. Those norms are used for allocating national budget to central and sub-national levels. At sub-national level, those cost norms can be modified and decided by Provincial People's Council in alignment with provincial sector priorities. Except in some 'strategic' sectors such as education and training or science and technology, sub-national allocation cost norms cannot be lower than the thresholds set by central cost norms.

Step 2: Budget preparation guidance at provincial level. Based on central level guidance, the province normally issues its own guidelines on the provincial SEDP and State budget - and possibly on budget estimation - in June. This is expected to serve as an 'indicative budget ceiling' for line departments. Due to poor budget/revenue information from both MPI/DPI and MOF/DOF in July and substantial revision of the budget during execution, these estimates are not hard, comprehensive sector budget ceilings.

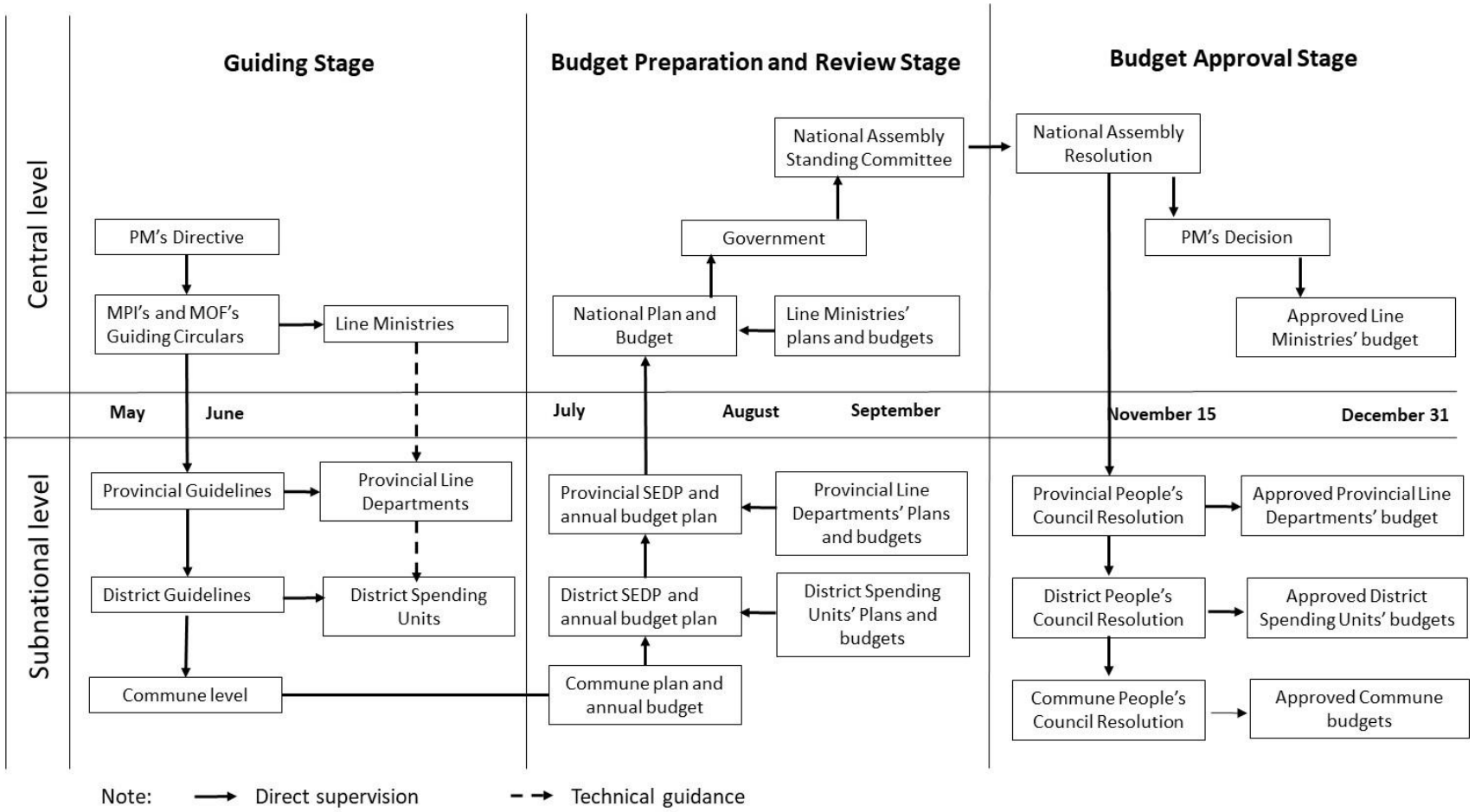


Figure 1.6 - Schematic Representation of Budget Preparation Process in Viet Nam

Local budget development is based on: i) the five-year SEDP and ten-year Socio-economic Development Strategy (SEDS) or masterplans (*quy hoach*) of the province and sectors; ii) analysis of actual budget performance in prior year(s); and iii) a matching of revenues and expenditure with priority being given first to social objectives, then to economic development. The province can mobilize domestic funds through borrowing domestically (from Viet Nam Development Bank, Treasury or issuance of Municipality Development Bonds…) or externally (via on-lending mechanism from central external borrowing) to meet development objectives, but the outstanding debt balance should not exceed a certain level of its entitlement budget revenue.

Step 3: SEDP/Budget preparation at provincial level and submission to MOF and MPI. This sub-process must be completed within about one month. Provincial SEDP and budget preparation and finalization templates are specified in detail in annual guidelines where applicable. In any sub-national tier, the planning and finance organizations are responsible for developing an aggregate SEDP and budget plan for that tier by consolidating development plans and budget plans of line departments and/or spending units at the same level and those of the lower government tier[3]. The aggregate SEDP and budget plan is sent to local People's Committees to report to the People's Council of the same level and to the planning and finance organizations of the higher level. At the central level, provincial SEDPs and budget plans are sent to the MPI and the MOF for consolidation into a national aggregate SEDP and budget plan, which is then submitted to the Government.

Step 4: Budget review at national level. As illustrated in Figure 1.6, MPI and MOF are responsible for consolidation and submission of the national SEDP and budget plan for the Government's review prior to review by the National Assembly. The discussions at MOF and MPI level also include bilateral discussions with provinces and relevant line ministries (in August and/or September) so that they are able to defend their budgets at provincial and sector levels.

Step 5: Budget approval at national and provincial level. The budget should be approved and communicated down to the commune level by the end of the year before the budget year. Differences, if any, between the budget proposed and the approved budget should be made clear by the higher budget levels to the lower budget levels.

Upon the completion of the budget review, a series of decisions on budget approval are issued: i) a decision by the Prime Minister on approval of State budget; ii) a decision by the MOF on approval of budget of each Province and each Line Ministry; iii) a decision by the MPI on approval of investment and development indicators; and iv) a decision by the Prime Minister on approval of the budget for NTPs, followed by a circular from the MOF guiding the execution of the budget. Similar procedures are followed at provincial level with roles matching those of the central organizations accorded to the Provincial People's Committee, the DPI and the DOF.

As required by State Budget Law 2015, provinces must develop their three year Financial and Budgetary Plan in rolling principle. This aims to introduce a kind of MTEF in Viet Nam, but its formulation principles and purposes of use are much different.

[3] The 'matryoshka' principle, whereby budgets nest inside one another, like dolls, and one level only knows the details of the level immediately below it.

1.5.2 Provincial capital budget planning

Each province and city has its own budget, in which the general revenue comes from taxes, fees and charge and other lawful revenues In addition, a province can receive target transfer from central capital budgets to implement NTPs and/or sector target programs. Prior to commencement of a five-year period, line departments have to work with their subordinates to collect their investment needs (or investment project concept notes) for the period of five years, then they send to DPI. Working with DOF, the DPI reviews reliability and affordability of funding proposals in those concept notes, and consolidates acceptable concept notes from all sectors to make a long list of five-year investment projects, whose total funding need must be equal to the announced five year investment ceilings. Once the list is approved by Provincial People's Council, it becomes a Provincial Medium-Term Public Investment Plan (P-MTPIP). Only projects included in P-MTPIP can go to feasibility appraisal stage in annual public investment planning (APIP).

Every year, depending on annual funding availability, DPI can take a group of the most needed concept notes to put into a short list. The projects identified in the short list will get a small funding package for preparing a feasibility study, or both prefeasibility and feasibility study (with large scale projects). After that, the PFS/FS is subject appraisal by a Provincial Appraisal Council headed by the PPC chairperson. If passed, the projects can be funded in the next step. Figure 1.7 outlines the process.

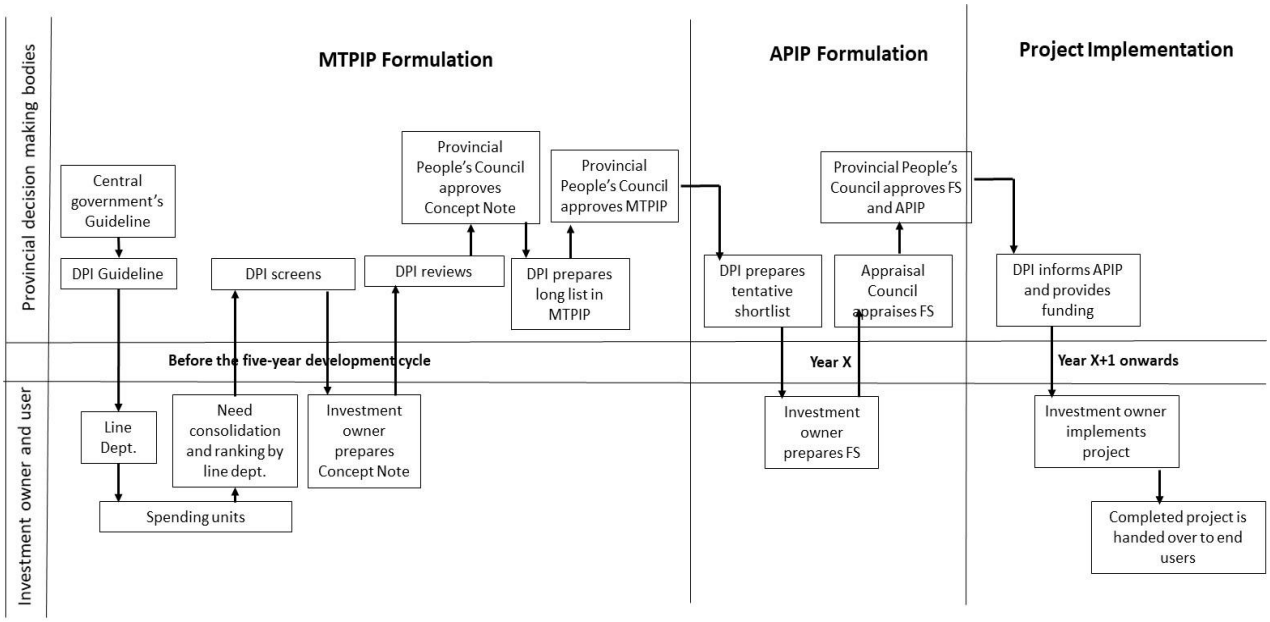


Figure 1.7 - The provincial budget process through MTPIP formulation, APIP formulation and project implementation.

1.6 The importance of project-based mainstreaming

During the 2016 – 2020 period, investment budget allocation was guided by Decision 40/2015/QD-TTg (The principles, norms and criteria to allocate capital resources development state budget, 2016-2020). Some general areas are identified in this decision, for example education, health, media and national defence. Climate change is not specifically identified as a one of these general areas. However, responding to climate change is identified as a sub-area under "natural resources and environment". Additionally, the Decision notes that investment shall be through the Target Program

to Respond to Climate Change and Green Growth. Thus, during the period during which much of the data was collected in the study presented here, climate change beyond the National Target Programme was a component of a general area for investment, rather than a specific investment area.

This positioning of climate change will be similar in the subsequent period. Allocation of investment budget in the period of 2021 – 2025 is centrally guided. Resolution No. 973/2020/UBTVQH14 (On State budget-sourced public investment capital and allocation principles, criteria and amount, 2021 – 2025) indicates the themes which are suitable for investment budget allocation in Article 3. These include national defence, education and training, news and media, sport etc., but they do not include climate change. However, climate change can be inculcated in many themes, for example meteorology and early warning, protection of natural resources, infrastructure of coastal zones and water storage.

Thus, in planning and budgeting for the 2021 – 2025 period, climate change will be mainstreamed rather than a primary focus of investment themes. The exception to this is raised through Article 4 which prioritises allocation to implement, boost progress in order to finish and utilize projects under the national target programs, vital national projects, programs and projects connecting regions and/or affecting multiple regions, promoting rapid and sustainable socio-economic development, protecting and caring for people's health, preventing and averting natural disasters, adapting to climate change (river and coastal erosion, salt-water intrusion, sea level rise, etc.) and ensuring water security as soon as possible.

Allocation of climate change-related investment budget will be mainly through mainstreaming of climate related activities under the primary investment themes. Promulgation of this form can lead to cross-government and climate smart investment, assuming that climate change is designed into relevant projects. This also means that any climate tracking approach will need to use a project budget weighting associated with the degree of expenditure on climate change as a proportion of the overall budget. However, incentivisation is needed to ensure that all potential projects design in climate relevant actions at the design and Masterplan stage, so they subsequently flow in the MTIP and finally to funding.

1.7 Conclusions on the Policy and Institutional Framework

A. Viet Nam has responded strongly to the challenges of climate change with national, sector and sub-national policies and programs which are coordinated by the National Climate Change Committee (NCCC).
B. The climate change and green growth policies and action plans have addressed the main issues in the period to 2020. They demonstrate substantial mainstreaming of climate change responses in sector and provincial policies, plans and programmes.
C. Organizational strengthening to support the NCCC task of oversight and coordination of climate change responses is ongoing, with international support, in particular to enhance monitoring and evaluation (M&E) and monitoring, reporting and verification (MRV) capacity.
D. Climate change adaptation and emissions mitigation responses can be improved, and co-benefits can be achieved as per the updated NDC for the period 2021-2030, whereas analysis shows that further ambition to reduce GHG emissions is possible.
E. A structured and organised annual cycle is used to allocate budgets which is initially formed from the five-year SEDP and ten-year SEDS.

F. For provincial annual investment budgets, certain priority projects are selected from the pool of project concepts approved by provincial People's Council (which together represent the P-MTPIP), and following a feasibility and appraisal phase some of these projects are funded and implemented; this route is important for climate change investments.
G. Mainstreaming of climate change within sector policies and project investments, rather than climate change as the primary focus, can be expected to become more widespread.

2 Methodological overview

2.1 Introduction

The approach used in this CPEIR is generically aligned to the approaches used in CPEIRs in other countries but tailored to the national context of Viet Nam. The specific methodology used in this analysis builds on the approached applied in the first Vietnamese CPEIR published in 2015. However, the coverage of this CPEIR is broader through inclusion of more provinces and ministries, and trends over time are reported with the availability of longer time-series financial data. The climate budget approach as outlined by Decision No. 1085/QD-BKHDT by MPI on 16 July 2018 on Guidance n classification of public investment in climate change (CC) and green growth (GG) could not be used in this study as level of project information required to undertake the coding was too detailed.

The methodology and analysis applied in this report focusses on two areas: (i) individual reporting folio of climate finance and policy in each targeted province and ministry, (ii) combined analysis identifying national trends and features of provincial and ministry climate budgeting. The analysis does not cover all provinces or ministries, but it does include a representative variety of 29 provinces and also six line ministries which are directly and actively involved in the climate change response.

2.2 Budget information collection and analysis

This CPEIR assessment focuses on the identification and classification of public investment projects (investment expenditures) related to climate change in 29 provinces and 6 ministries. The time period of the financial data in the study was five years of the medium-term public investment period i.e. 2016-2020. The investment budget is allocated to a set of define projects across government through MPI.

However, some additional data was also obtained which increased the length of time during which the budget could be followed (starting form 2011 rather than 2016) and which covered the recurrent and not just the investment expenditures. Thus, for the three provinces of An Giang, Bac Ninh and Quang Nam and five line ministries (MARD, MOT, MONRE, MOC and MOIT), which were assessed by the CPEIR 2013, the scope of the review was increased to 11 years (from 2010 -2020) and included both investment and recurrent expenditures related to climate. For MOST, which was not in the previous CPEIR, the scope of the review is from only 2016 to 2020 and includes both investment and recurrent expenditures related to climate.

The scope of the study is such that it does not include any further aspects of budgets than investment and selected recurrent budget items. Thus, excluded from the study are other indirect forms of expenditure such as financial incentives, taxes and subsidies and allocations to State Owned Enterprises (SOEs).

A stepwise process was followed to obtain the required budget information. Firstly, MPI sent an official letter to the People's Committee (PC) of selected provinces and the targeted line ministries requesting provision of specific data on climate change related public investment and recurrent expenditures. Each ministry and province designated a focal point to coordinate data collection and project classification in accordance with the climate change expenditure classification guidelines of UNDP and WB in 2013. Pre-designed data collection forms were also supplied to facilitate data collection. Secondly, on the basis of the official letter from MPI, the CPEIR team conducted meetings and exchanges through the focal point with planning departments at line ministries, and the DPI of the provinces, in order to collect the relevant data and any associated documents. At the provincial

level, DPI is the focal point of contact and data provider, in some cases DPI works closely with the Departments of Natural Resources and Environment, Finance, Agriculture and Rural Development, Transport, Construction, Industry and Trade to provide additional data at the request of the consultant teams.

The collected data is a list of programs and projects that are mentioned in the approval decisions of the annual plan and/or the medium-term investment plan of MPI as well as of each province. For some important projects, the project documents include investment decisions (investment certificates) and reports of ministries, branches and localities on the status of public investment. All potentially climate-related project budgets were collected on an annual basis. For years up to and including 2019 the outturn figure was used, for 2020 the planned budget expenditure figure was used. These annual project amounts were tagged with the source of the finance, which was divided into 4 categories: domestic investment, ODA investment, domestic recurrent, and ODA recurrent expenditure. The standard unit of granular budget data was a named project with an expenditure value for one specific year which was tagged with its financial source.

The extent of the data collection was as a follows:

For 29 provinces investment (domestic and ODA) data was collected for 2016 – 2020.

Additionally, for three of these provinces investment and recurrent data (domestic and ODA) was collected from 2010 – 2020[4].

For six ministries investment (domestic and ODA) data was collected from 2016 – 2020.

Additionally, for five of these ministries investment and recurrent data (domestic and ODA) was collected from 2010 – 2020[5].

The provinces represent a selection of 29 from the total of 63 provinces in Viet Nam as agreed with MPI. As the provinces were not selected to be a representative sub-sample of all provinces, extrapolation of the results to represent all provinces is not advised. The selected provinces include only one of the five centrally- governed cities, which are a similar administrative level as the provinces but which could be expected to have a different climate change response profile. The six selected ministries represent the main ministries which are involved in climate change response, and thus the six ministries combined can be expected to represent a majority of the climate change allocation of all central agencies.

For each standard unit of data, a review and coding process was undertaken as used in the CPEIR 2014. This process was termed the TCCRE (Typology for Climate Change Response Expenditure) and a methodological guide has been published[6] which details the process that is outlined below. The methodology devised by MPI in 2018 for climate budget analysis was also considered for this analysis. However, the MPI approach requires detailed project-based information to carry out the coding; this was not possible due to the large scale of coverage of this study and also the provision of just budget lines, rather than project descriptions. The CPEIR 2014 approach was thus the only practical methodology to use in this work.

Step 1: Identification of climate change-related expenditure. The project is assessed to determine if it is related to climate change through delivering adaptation or mitigation outcomes (see Table 2.1).

[4] These were the 3 provinces covered by the CPEIR 2014: An Giang, Quang Nam and Bac Ninh.
[5] These were the 5 Ministries covered in the CPEIR 2014: MARD, MONRE, MOT, MOIT and MOC.
[6] UNDP & World Bank (2014) Vietnam Climate Public Expenditure and Investment Review: Background Note: CPEIR Typology Guide of Climate Change Response Expenditure (TCCRE) in Vietnam.

The budget analysis identifies "climate change related" projects which means that some or more of the project budget is used to address concrete issues which are manifested because of climate change. These can be in the concern over causing further climate change through GHG emissions (mitigating climate change by reducing emissions) or through responding to the effects of climate change (adaptation to climate change) such as droughts caused by longer periods of limited rainfall, or salination caused by sea level rise. For brevity the term "climate related" is used in the text which is the used as short version of "climate change related".

Table 2.1 - Definition of adaptation and mitigation.

Adaptation	Mitigation
Improve resilience to present and forecast climate change by protecting against negative effects on people, resources and infrastructure or taking anticipatory action against projected future adverse effects.	Reduce resource inputs and GHG emissions per unit output though technological change, substitution and carbon sequestration. This could involve reducing GHG emissions directly (e.g. reduced use of fossil fuel use in transport, renewable energy)

If the project is deemed to be related to adaptation or mitigation then it is retained in the analysis. If the project does not appear to be related to adaptation or mitigation then it is rejected and removed from the analysis. The outcome of step 1 is a list of climate-related projects for each year of the analysis.

Step 2: Classifying climate change related expenditures by CC Task. This step places the project into a predefined climate change hierarchical typology. This typology was used in the CPEIR of 2015 and was developed through consultation with government representatives to be a unifying framework for the full range of activities involved in the climate change response. The top level of the typology divides the investments into three pillars: Policy and Governance (PG); Scientific, Technological and Societal Capacity (ST); and Climate Change Delivery (CCD). Within each pillar there are a number of categories and within those categories there are a suite of tasks (Table 2.2).

Table 2.2 - The Typology for Climate Change Response Expenditure (TCCRE).

CC Pillar	Category	Task
Policy & Governance (PG)	***PG1: A national framework for adaptation and risk reduction.***	**Priority Task 1: Adaptation Policy Management**
		PG1.1 Establish CC risk assessment and adaptation guidelines in SEDP
		PG1.2 Coordinate adaptation and risk reduction implementation across government, enterprises and communities
		PG1.3 Monitor and evaluate expenditure and implementation of Adaptation policies
	PG2: A comprehensive consistent national mitigation policy framework	**Priority Task 2: Mitigation Policy Management**
		PG2.1 Establish consistent fiscal policy basis for tax and incentive structure for new and clean energy (Mitigation Fiscal Framework--MFF)

CC Pillar	Category	Task
		PG2.2 Coordinate MFF implementation among departments, enterprises, and provinces
		PG2.3 Monitor and evaluate expenditure and implementation of Mitigation policies.
	PG3: Action Plans and Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery.	*PG3.1: Action and Sector Plans*
		PG3.2: CC Impact assessments
		PG3.3: CC Capacity building got government organs as for effective action and sector plans
	PG4: Legal framework to implement CC policy (all elements of CC/GG policies)	*PG4.1: Mitigation legislative instruments*
		PG4.2: Adaptation legislative instruments
	PG5: International cooperation, integration and diversification and strengthening of CC investment effectiveness	*PG5.1 Encourage and benefit from diversification and foreign financing to support of CC policy*
		PG5.2 Effective management and co-ordination of foreign and domestic investment
Scientific, Technological and Societal Capacity (ST)	***ST1: Develop science and technology as a foundation for formulating policies, assessing impacts, and identifying measures on climate change adaptation and mitigation.***	*ST1.1 Information and database development.*
		ST1.2 Hydrometeorology and climate / risk projection enhancement
		ST1.3 Biological & genetic resource strengthening
	ST2 – Improve awareness of climate change in education and life-long learning.	*ST2.1 Climate change awareness building in curriculums of primary to higher education establishments.*
		ST2.2 Awareness of climate change in diverse education and training initiatives for post-school aged learners
	ST3: Develop community capacity for responding to climate change.	*ST3.1 Capacity in climate change awareness and response in community and civil society leaders.*
		ST3.2 Capacity across whole community in climate change response
Climate Change Delivery (CCD)	***CCD1 – Natural resources***	*CCD1.1 – Coastal protection & dykes*
		CCD1.2 – Saline intrusion
		CCD1.3 – Irrigation
		CCD1.4 – River dyke and embankments
		CCD1.5 – Water quality and supply
		CCD1.6 – Rural development and food security
		CCD1.7 – Forest development
		CCD1.8 – Fisheries & aquaculture
		CCD1.9 – Biodiversity & conservation
	CCD2 – Resilient society	*CCD2.1 – Public health & social service*
		CCD2.2 – City resilience

CC Pillar	Category	Task
		CCD2.3 – Transport
		CCD2.4 – Waste management
		CCD2.5 – Disaster-specific infrastructure
		CCD2.6 – Strengthening disaster risk reduction and management
	CCD3 – Enterprise and production	*CCD3.1 – Energy generation*
		CCD3.2 – Energy efficiency
		CCD3.3 – Infrastructure and construction
		CCD3.4 – Industry & trade
		CCD3.5 – Tourism

Each project investment is thus defined by a pillar, category and task. A standardised coding system is used which define the pillar, category and task. So for example, the code CCD3.2 if formed from CCD (Climate Change Delivery pillar), category 3 (Enterprise and Production) and task 2 (Energy Efficiency). If a project did not fit into one of the identified codes it was ejected from the database. Once step 2 is completed all projects have been coded with a climate change typology code.

Step 3: Categorising the type of the climate change related expenditure. In this step the expenditures are divided into three groups related to the type of climate response. Climate change responses can increase climate resilience through adaptation and GHG reduction through mitigation (see Table 2.1 for definitions). It is also recognised that some projects may achieve both adaptation and mitigation outcomes. Thus, there are three types of expenditure: adaptation (A), mitigation (M) and combined projects which have both adaptation and mitigation co-benefits (A/M)[7]. Projects that would be classified as A/M could include for example, renewable energy micro-grid systems supporting food and nutritional security of remote communities through electricity supply for fridges and freezers for storing harvested fish, or building high-energy efficiency building which are also raised up above projected future flood levels.

The coding system is a fundamental part of the climate change budget. In this case the naming of CCD2 as "resilient society" which is an adaptation-based category, and then the positioning of CCD2.3 "transport" under this, is a significant aspect to note. The coding of "CCD2.3 transport" in stage 2 presupposes it as an adaptation action as it is under CCD2. While much transport interventions may be adaptation-based, many can be mitigation-based, or a mix of adaptation and mitigation. The forced coding of "transport" as an adaptation intervention does not reflect the climate change intent of some transport interventions. As well as challenging accurate consolidation of a climate budget, this coding issue also creates issues in the analysis of the climate budget against national policy instruments (see Chapter 5). A detailed assessment of the coding system is vital if a regular climate tracking process is implemented in order to avoid such inconsistencies.

Step 4: Defining the proportion of the expenditure related to climate change. This step identifies the proportion of the total project budget that is relevant to achieving climate change-related outcomes. It is recognised that projects will be developed for particular purposes which are not only climate change, but that some component of the expenditure may be related to climate change. For example,

[7] *The 2015 CPEIR only used A and M project types, as outline in the TCCRE guide and in the full report. The additional A/M category reflects advances in understanding in climate response since that report and also a further channel of analysis searching for efficiency through combined A and M approaches.*

the building of a hospital may include additional adaptation expenditures such as bigger storm drains and raising of generator system above flood water to allow uninterrupted operation during times of flood which are higher and more frequent because of climate change. In the case of the hospital, it is the additional resilience building works that would be climate-relevant, not the cost of the hospital itself. Some projects, however, may be fully related to climate change and thus all of the project expenditure can be attributed to the climate change response. An example is the development of early warning systems for floods and storms, or building capacity for rice farming with increasing salinity.

Detailed project itemised annual project budgets would be required to permit a precise figure to be determined for climate related expenditure. Thus, an approximation is used in the work presented here which only uses annual budget totals. The approaches taken up uses a 5 level categorisation of the proportion of project budget which is climate-related, from 1-24% of the total project budget (termed, marginal relevance) up to 100% of the project budget (termed complete relevance). The proportional climate-related expenditure categorisations are described and examples provided in Table 2.3.

Table 2.3 - The five categories used to determine the proportion of climate-related expenditure within the overall annual project budget, with hypothetical examples for each category.

Category	CC related expenditure	Definition and examples
Complete relevance	100% expenditure	***Projects which either (i) explicitly state a predominant climate change objective, or (ii) are fully dedicated to exclusively delivering climate change related benefits, or (iii) sit within a Governmental programme dedicated to climate change (e.g. NTP-RCC). Projects may satisfy one or more criteria to qualify.*** Possible examples: ✓ Capacity building of communities and / or civil society in climate change. ✓ Irrigation development to reduce impact of projected extended drought season. ✓ Developing monitoring system to assess incidence of climate sensitive diseases
High relevance	75% - 99% expenditure	***Projects have (i) one or more of the primary objectives to improve climate resilience or mitigation, or (ii) deliver significant and specific results / outcomes that improve climate resilience or contribute to mitigation. Projects may satisfy one or both criteria to qualify.*** Possible examples: ✓ The additional costs of changing the design of a programme to improve climate resilience (e.g. extra costs of climate proofing infrastructure, beyond routine maintenance or rehabilitation) ✓ Building institutional capacity to plan and manage sustainable transport, including climate compatible approaches. ✓ Relocating villages against cyclones
Medium relevance	50 – 74% expenditure	***Projects either (i) have secondary objectives related to building climate resilience or contributing to mitigation, or (ii) some results / outcomes of the project are related to building climate resilience or contributing to mitigation, or (iii) mixed programmes with a range of activities that are not easily separated but include at least some that promote climate resilience or mitigation. Projects may satisfy one or more criteria to qualify.***

Category	CC related expenditure	Definition and examples
		Possible examples: ✓ Forestry and agroforestry that is motivated primarily by economic or conservation objectives, because this will have some mitigation effect ✓ Water storage, water efficiency and irrigation that is motivated primarily by improved livelihoods because this will also provide protection against drought ✓ Eco-tourism, because it encourages communities to put a value of ecosystems and raises awareness of the impact of climate change
Low relevance	25% - 49% expenditure	***Projects that include activities that display attributes where indirect adaptation and mitigation benefits may arise but climate change benefits are not explicitly listed in project objectives or the stated results / outcomes.*** Possible examples: ✓ Water quality, unless the improvements in water quality aim to reduce problems from extreme rainfall events, in which case the relevance would be high ✓ General livelihoods, motivated by poverty reduction, but building household reserves and assets and reducing vulnerability in areas of low climate change vulnerability ✓ General planning capacity, either at national or local level, unless it is explicitly linked to climate change, in which case it would be high
Marginal relevance	1-24% expenditure	***Projects that include activities that have only very indirect and theoretical links to climate resilience although climate change benefits are not explicitly listed in project objectives or the stated results / outcomes.*** Possible examples: • Agricultural extension activity in which one small part related to rice storage facilities is linked to increased flooding risk • Education in biodiversity and environment with minimal but recognisable treatment of climate change. • Improving building design guidelines of which part is related to energy conservation.

For each project the climate change related budget is estimated using the mid-point of the proportional expenditure category multiplied by the total project budget. In this way climate change budgets can be collated by year, by province, by Ministry etc. In addition, budgets for each climate-relevant task (step 2), and type (A, M or A/M; step 3) can also be created.

Whilst the approach used in this budget study was implementable it was also challenging. Several reasons for this are identified that are mostly related to one key aspect of the methodology; the methodology is based on retrospective analysis of information which was not collected or collated for this purpose. The retrospective identification of climate change related projects at provincial and Ministerial entities, attribution to task (under pillars of CCD, PG and ST) and type (A, M or A/M) and estimation of climate relevance of the overall budget all involve the potential for a loss of accuracy.

With validation of emergent outcomes with relevant provincial and Ministerial representatives, the overall accuracy may be not be impacted, but the time and resources required to undertake such an analysis remains significant.

Some of the challenges to the methodology identified in the CPEIR of 2015 still exist, including: (i) the decentralised nature of project recordkeeping and reporting causes substantial delays in obtaining data and applying the methodology; and (ii) the lack of consistent reporting on project expenditure outturns has made it difficult to give reliable comparisons between CC-response allocations (or ODA commitments) and actual expenditures. Later in this report recommendations are made for facilitating the process of climate budget formulation to allow more "real-time" climate budgets which could better support strategic and financial planning.

2.3 Policy information collection and analysis

The main national climate change-related policies were identified, as well as related action plans for each of the 29 provinces and 6 ministries. The climate change policies included: the National Target Program to Respond to Climate Change (NTP-RCC) that was initiated in December 2008 and reports for period to 2015; the National Climate Change Strategy (NCCS) and Climate Change Action Plan (CCAP) as well as sectoral and provincial climate change action plans; the Viet Nam Green Growth Strategy (VGGS) and Green Growth Action Plan (GGAP) and sectoral and provincial action plans; and the Plan for Implementation of the Paris Agreement (PIPA) and localised PIPA action plans. An additional category termed "other" was also used for other policies which were deemed climate-relevant, including policies, action plans on disaster management and on Reducing Emissions from Deforestation and Forest Degradation (REDD).

The strategies and action plans were collected from central repositories of some of those (departments in MPI and MONRE) and from websites. All policies were officially approved, either by the Prime Minister or by ministerial or provincial authorities. Not all sector ministries and provinces issued all the equivalent localised action plans. Some issued detailed localised action plans, whereas other ministries and provinces kept them at a very general level and similar to the relevant topics in the national level action plans. In a small number of cases the sectoral or provincial action plans were issued but the researchers failed to access them (see Annex 2 with an overview of localised policies).

The relevant policies were summarised as regards topics and specifics that could be expected to be found in the review of budget data. Some of these summaries are found in tables in chapter 1, whereas other summaries are in the folios of ministry and province budget data. Key words in these summaries were used in the analysis of comparing policies with the spending categories. A weakness in this analysis is that there is no obvious, stated, clear part of the budgeting process at the ministry or province level in which any task or action in the national or localised action plans are explicitly linked to budget proposals or approved budgets. The analysis of policy-budget was thus only possible at the general thematic level.

On the analysis of policy-budget links, it is important to note that the typology in Table 2.2 was jointly developed by MPI, UNDP and World Bank ensuring that all Strategic Tasks in the NCCS of 2011 were linked to a Task of the typology. Because the typology and the NCCS actually have very similar scope, all climate change expenditure found according to the typology should also fit the NCCS, i.e. all expenditure must "code onto" the NCCS.

This is not the case for the VGGS or PIPA which is demonstrated in Table 5.1 for both the VGGS and PIPA, as the results of coding onto these major policies are discussed. The VGGS includes Solutions that are not captured by the typology in Table 2.2 because they are not exclusively about climate change but about other sustainable development matters. Many solutions in the VGGS do relate to climate change mitigation, but it does not include all possible adaptation solutions. In some cases, more than one solution in the VGGS links to just one category in the typology. PIPA does address climate change in a comprehensive manner, including mainstreaming of climate change in national sector programmes. But this mainstreaming is not explicit in the methodology, and therefore some may be missed by the expenditure assessment. PIPA also remains quite general, so that specific expenditures that were found (following the typology) cannot be related to any of the PIPA Tasks.

There is a clear distinction between adaptation and mitigation in some categories and Tasks in the typology, enabling the classification of certain expenditures as adaptation (A), mitigation (M) or both (A/M). Some categories and Tasks cover both, so that additional analysis is required to determine whether it is A, M, or A/M (defined in Table 2.1). In the case of category “CCD2-Resilient society” this has caused some confusion because “resilient” implies that all is about adaptation, which is correct for some related tasks, but not for “CCD2.3-Transport” and “CCD2.4-Waste” that may be primarily about mitigation or both adaptation and mitigation.

3 Provincial climate change related budget

3.1 Introduction

This chapter presents the climate change budget and policy information collected from 29 provinces in Viet Nam[8]. The climate budget information used in this chapter is primarily based on investment expenditure data. The chapter presents information at two levels. Firstly, it presents a climate budget and policy information for each province, using the data provided by the province; this provides an individual characterisation of the climate situation in each province. Secondly, the chapter provides an analysis of the information collated together for all of the 29 analysed provinces; this is to provide an assessment of the overall pictures and trends in climate budget allocation at the provincial level.

The information is presented following the methodology outlined in the previous chapter with the climate change investment budget being broken down into domestic and ODA sources, and investment being coded for purpose (adaptation/ mitigation) as well as a range of climate-related tasks. Finally, an assessment is made of these data in relation to emerging outcomes of the provincial analysis.

3.2 Climate budget of individual provinces

A standard format climate budget folio was put together for each analysed province. The folio provides information on 6 main areas:

1) Introduction and main climate change activities in the province.
2) Size and source of climate change investment budget.
3) The allocation to adaptation and mitigation.
4) The allocation to climate change tasks
5) The main ODA project expenditures
6) The policy and planning instruments.

A total of 26 provincial folios are presented in this folio format (see Annex 2). The remaining three provinces (An Giang, Bac Ninh and Quang Nam) have additional data and thus are presented in a more comprehensive folio (Annex 3).

There was considerable diversity in the provincial folios and in particular the scale of the climate change investment budget in relation to the overall provincial investment budget. For example, for single years, in 2019 Ca Mau province had a climate budget which represented 2% of the provincial investment budget, whereas in 2019 Hue the climate budget represented 59% of the provincial budget. This large difference between provinces is also apparent over a longer 5-year time scale (2016 – 2020) with Long An province having a climate budget of 11% of the provincial budget, whereas the climate budget of Ben Tre province represented 34% of the provincial budget. This is evidence for medium term consistency in differential proportions of climate-related budget in different provinces.

3.3 Combined climate budget of 29 provinces

Combining the data of 29 provinces provides a broad analysis of the overall trends in provincial climate investment budgeting from 2016 to 2020 (Figure 3.1). The average climate budget over the studied

[8] Viet Nam currently has 58 provinces and 5 cities under the jurisdiction of central government, collectively referred to as 63 provinces.

period was about VND 18,000 billion, However, the climate budget increased each year, from 2016 to 2020 from about VND 15,000 billion in 2016 to almost VND 24,000 billion in 2020.

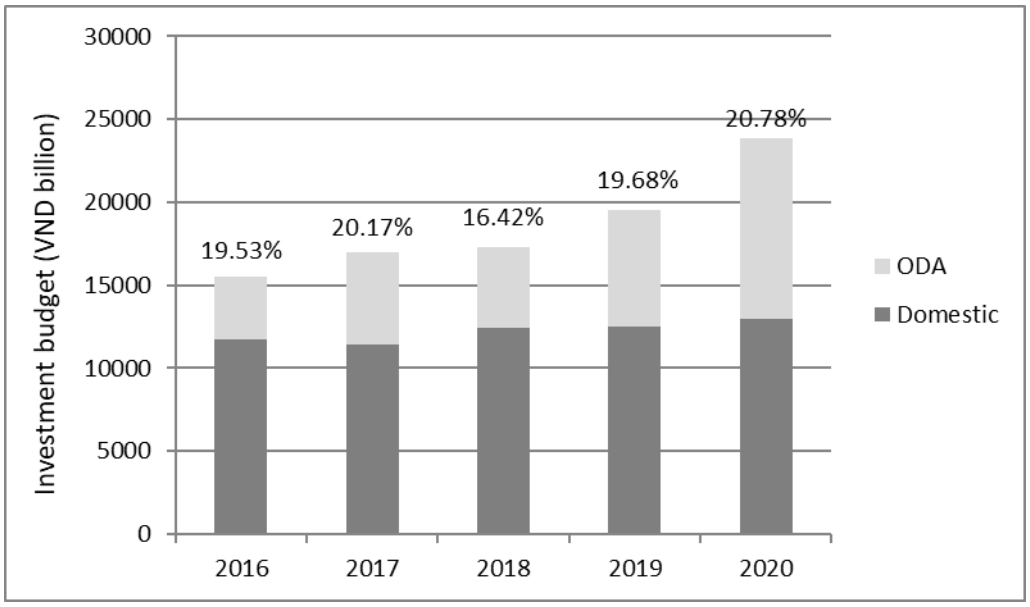


Figure 3.1 - The climate investment budget for the 29 provinces from 2016 to 2020.

These annual flows are broken down into ODA and domestic sources (numbers above the bars are the % of the total provincial investment budget represented by the climate investment budget).

The annual increase in the climate budget was predominately due to an expansion in the ODA investment component. The ODA component increased from VND 3,800 billion to 10,900 Billion from 2016 – 2020. This meant that ODA increased from 24% of the climate investment climate budget in 2016, to 46% by 2020. In contrast, domestic investment budget was largely stable over the period. Domestic investment declined in importance in the climate investment budget due to increasing ODA, from 76% in 2016 to 54% of the climate investment budget in 2020.

The climate change investment budget hovered around 20% of the total provincial investment budget, although it was a bit lower in 2018 (16.5%). Domestic investment in climate change expanded more slowly than the provincial budget. However, ODA investment increased faster than overall growth in the provincial budget, permitting stability in the climate change component of the overall provincial budgets. The combined 29 province climate change investment budget has become increasingly reliant on ODA as there is a trend of relative divestment in domestic climate investment compared to ODA.

The allocation of investment to adaptation and mitigation has remained relatively stable, with over 90% allocated to pure adaptation projects in all studied years (Figure 3.2). Nearly all the remaining climate change budget (6 – 10%) was allocated to mixed adaptation and mitigation projects. Investments were consistently made in every year in mitigation projects, however, they were always very small and represented less than 1.2% of the climate budget.

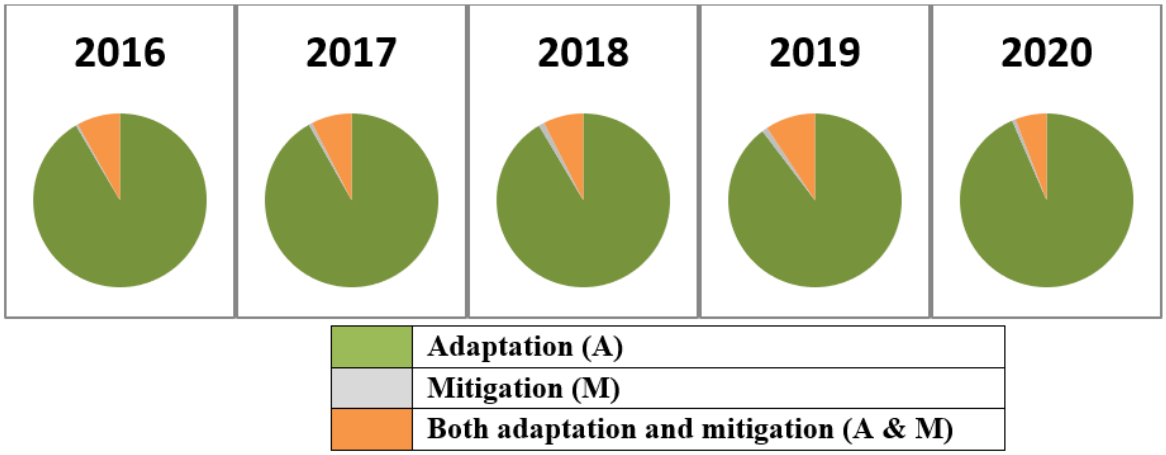


Figure 3.2 - Allocation of climate investment budget for the 29 provinces to adaptation, mitigation and mixed adaptation and mitigation projects, 2016 to 2020.

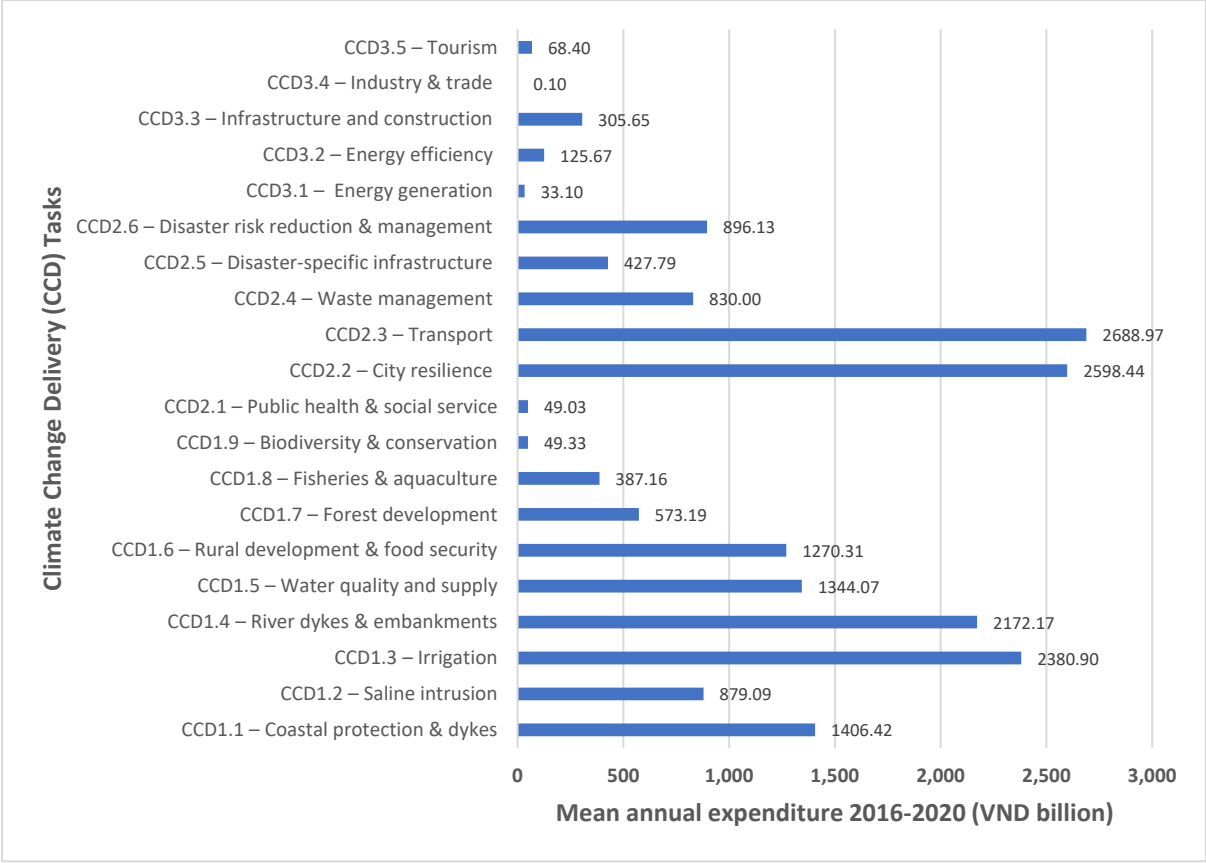


Figure 3.3 - Allocation of climate investment budget for the 29 provinces to Climate Change Delivery Tasks.

These CCD tasks make up over 99% of the climate budget; over half of the CCD budget was allocated to four tasks: transport (CCD2.3), Residential and city area resilience (CCD2.2), Irrigation (CCD1.3) and River dyke and embankments (CCD1.4).

The vast majority of the climate investment budget was targeted at actions related to Climate Change Delivery (CCD), as opposed to Policy and Governance and Science, Society and Technology related actions. The CCD category represented over 99% of the climate budget over the period 2016 – 2020. The investments were diverse and spread across all the CCD tasks (Figure 3.3). The four main tasks which received over 2,000 billion VND per year in the 29 provinces were: CCD2.3 (Transport, 14.5% of total climate change budget), CCD2.2 (Residential and city area resilience, 14.1%), CCD1.3 (Irrigation, 12.9%) and CCD1.4 (River dyke and embankments, 11.7%). These four CCD tasks made up over half of the climate investment budget.

A further three CCD tasks received between 1,000 and 2,000 billion VND per year: CCD1.1 (Coastal protection and coastal dykes, 7.6%), CCD1.5 (Water quality and supply, 7.3%) and CCD1.6 (Rural development and food security, 6.9%). Smaller amounts of 500 – 1000 billion VND were attributed to CCD2.4 (Waste management and treatment, 4.5%), CCD 1.2 (Saline intrusion, 4.8%), CCD2.6 (Strengthening disaster risk reduction, 4.8%) and CCD1.7 (Forest development, 3.1%). Finally, investments in CCD3.2 (energy efficiency) CCD2.1 (Public health and social service), CCD1.9 (Biodiversity and conservation) and CCD3.1 (energy generation) were all below 1% of the annual climate change budget.

ODA has increasingly become a major component of the climate investment budget. The largest ODA investments (including multi-year projects) in the 29 provinces were:

1. Developing Can Tho city and enhancing urban resilience: 3 components (2016-2020, Can Tho, 11.53%):
    + HP1: Flood control and environmental sanitation;
    + HP2: Development of urban corridors;
    + HP3: Strengthening urban management to adapt to climate change.
2. Upgrading urban areas in the Mekong Delta region Can Tho (2016-2020, Can Tho, 2.51%).
3. Project to improve Hue water environment (2016-2020, Thua Thien Hue, 2.34%).
4. Long Xuyen city drainage and wastewater treatment system (2011-2013, 2015-2020, An Giang, 1.87%).
5. Sub-project on Upgrading the saltwater intrusion control system in Go Cong area (ADB-GMS1) (2016-2020, Tien Giang, 1.58%).

Can Tho province received the largest two investments which were both multiple year projects covering all of the 2016 – 2020 period. The largest project (Can Tho urban resilience) represented over 10% of the total ODA investment in climate change across the 29 provinces and is thus significant in scale. It is notable that all of the largest ODA projects were water-related projects which involved construction and infrastructure development.

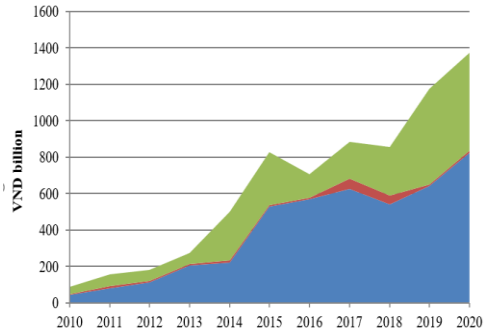
3.4 Long-term changes in allocation to climate change

Longer-term climate change budget data covering from 2010 to 2020 was available for three provinces: An Giang, Bac Ninh and Quang Nam. These 11 years of data were a composite formed from the data used in the CPEIR 2015 which targeted these three provinces, plus the data collected for this CPEIR. The folio for each of these three provinces is presented in Annex 3.

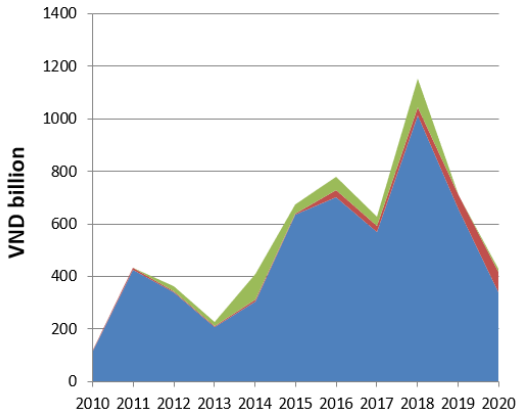
These data suggest that there has been a general trend of increasing climate change related budget from 2010 to 2018 for all three provinces. There is some evidence for a drop in 2020 in two provinces, though this may be due to the data being planned expenditures for this year. An Giang shows the

steadiest trend with a climate change related budget increase from under 100 billion VND per year in 2010, to over 1,000 billion VND in 2019 and 2020. The An Giang budget is made mainly from the investment budget with contributions of around 2/3rd domestic and 1/3rd from ODA. The investment climate change budget in An Giang has increased faster than the overall provincial budget; it was under 10% in 2010 – 2012, but was over 25% in 2019 and 2020.

a) An Giang



b) Bac Ninh



c) Quang Nam

Figure 3.4 - Total climate change budget expenditure 2010 – 2020 for three provinces

The budgets include investment expenditure and recurrent expenditure, from domestic sources and ODA at 2020's constant price

Bac Ninh and Quang Nam also show an increase in climate change related budget over the analysed period, though there is less consistency. Domestic investment has been the predominant source of support for climate change related activities. For Bac Ninh domestic investment has been consistently over 95% of the overall climate change budget, however, for Quang Nam ODA investment has made varying proportions, sometimes nearly equal to domestic investment. The climate budget as a proportion of the overall provincial budget has also been quite erratic, between 2010 – 2020 this has varied by 40% in both provinces (10 – 50% in Quang Nam, and 15 – 55% in Bac Ninh).

The focus of the climate change related budget in the three provinces has been consistently on adaptation during from 2010 – 2020. In some years there are more substantial allocations to mixed adaptation and mitigation projects (e.g. Quang Nam, 2011 to 2013, where mixed projects reached 10 - 32%), but pure adaptation projects maintain their dominance over time. Conversely, pure mitigation projects rarely represented a significant part of the climate budget. In Bac Ninh, mitigation allocation was <1% from 2010 – 2020, whereas in the other provinces it was generally low but occasionally increased for a few years, however it was always below 20% (see Appendix 3 for more detail).

The climate related budget from 2010 – 2020 were focussed predominately on Climate change delivery (CCD) tasks, as opposed to Policy and Governance (PG) and Science, society and technology (ST). In all three provinces for all 11 years under study the allocation to CCD has been over 94%; in Quang Nam it was maintained at over 98% in all years. Small allocations to PG and ST are present in most years, with ST tending to have a larger allocation than PG. This suggests that there is a consistency in ST and PG activities taking place, within a backdrop of the main allocation to tangible climate interventions under CCD. This pattern of expenditure by pillar has been remarkably consistent in the three provinces for which longer-term data is available.

Although the CCD dominance in budgets, accompanied by small ST and PG amounts, has been consistent from 2010 – 2020, a differential on the spending by task within CCD by province is apparent. For An Giang, 50% of the CCD budget is targeted at transport and waste management (CCD2.3, and CCD 2.4, respectively), whereas in Bac Ninh 50% is going towards irrigation and river dyke embankment (CCD1.3 and CCD1.4). In Quang Nam, the two CCD tasks taking over 40% budget are transport and residential and city area resilience (CCD2.3 and CCD2.2). Thus, over the long term there is evidence of differential targeting between provinces in climate expenditures which is related to the local context and needs of their province. This difference in climate-related expenditure areas between provinces could be expected to be based on priority areas for the province (e.g. water management in Bac Ninh) and may not necessarily be climate-related targeting of budgets.

3.5 Climate change budget volatility

Analysis of the climate change budgets of the 29 provinces has shown that there is significant inter-annual (between-year) volatility. This means that for one year the climate change budget may be large, and then next year it may be small. The climate change response needs to be planned and implemented over a long-term, guided by climate change projections and priorities with the sectors. Volatility in the climate change budget means that such planning is difficult and can lead to inefficiencies in implementation. For example, for infrastructure works fixed costs can be attributed to bringing heavy machinery to the site (e.g. specialised equipment such a dredgers), thus it is effective to undertake long-stretches of work rather than smaller interventions. In addition, capacity and expertise need to be created and maintained around many interventions, which can be complex and confounded by local circumstance. This capacity can help effectiveness of delivery and the longer term

success of the interventions, ultimately achieving more efficiency in terming VND into climate mitigation or resilience.

This section provides a detailed analysis of climate change budget volatility with the aim of determining the cause of volatility. The climate change budget volatility could derive from volatility in the overall provincial budget, or it could be due to high annual variability in certain sources of the budget (domestic/ ODA), or it could be from a combination of reasons. Identification of the source climate change budget volatility allows further insight into the budget planning process.

3.5.1 Measuring volatility

For the 29 provinces analysed there is data available from 2016 to 2020; the volatility analysis focuses on variability during this 5-year period. The data analysed are investment data only, because recurrent expenditure data is available for only a few provinces and the recurrent flows into the climate budget are relatively small. Volatility can be assessed in a variety of ways, often based on a standard statistical measure called Standard Deviation[9]. However Standard Deviation varies on the basis on the mean of the analysed dataset, and it is necessary to standardise this to allow comparison between different provinces which have different sizes of budgets. The Coefficient of Variation (CoV) is a relative measure of volatility that helps compare multiple datasets with different averages; it is calculated as the Standard Deviation divided by the average. The higher the CoV the higher the volatility, in the case analysed here this means that there is more variation between years in the climate change budget for the province.

Volatility analysis using CoV is used to answer two key questions:

1. Is the climate change investment budget more volatile than the overall provincial budget?
2. Which sources of the climate change investment budget (domestic or recurrent) are causing the volatility in the climate change budget?

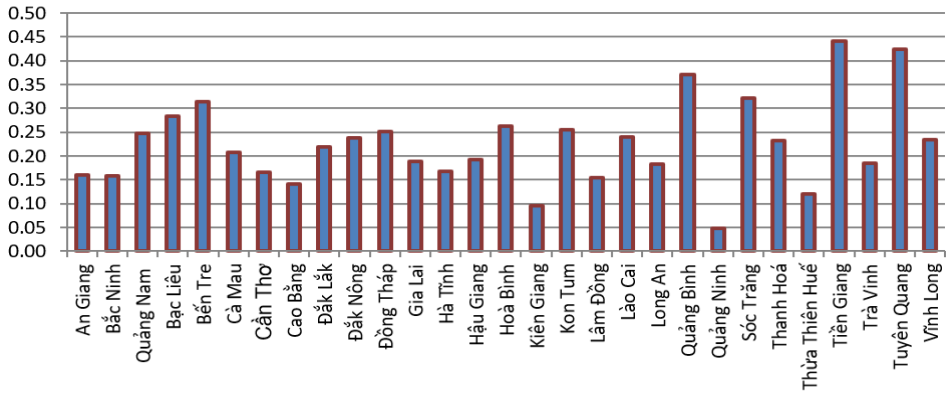
3.5.2 Volatility analysis of the climate change budget

Using CoV, it is possible to compare the volatility in the overall total investment budget with the climate change investment budget for each province (Figure 3.5). In most cases the CoV of the climate change budget is higher than the respective provincial budget.

To allow a more detailed view of this, the frequency of all provinces by CoV was determined (Figure 3.6). The graph shows that volatility of the provincial budget is relatively low, with 24 of the 29 provinces within 0 to 0.2 CoV scores. However, the climate change budget has higher CoV scores (up to 0.7 to 0.8 category) and 17 above 0.3 CoV score. The analysis shows that annual volatility is higher in the climate change budget than the overall provincial investment budget.

[9] Standard Deviation measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance.

a) Total provincial investment budget



b) Climate change investment budget

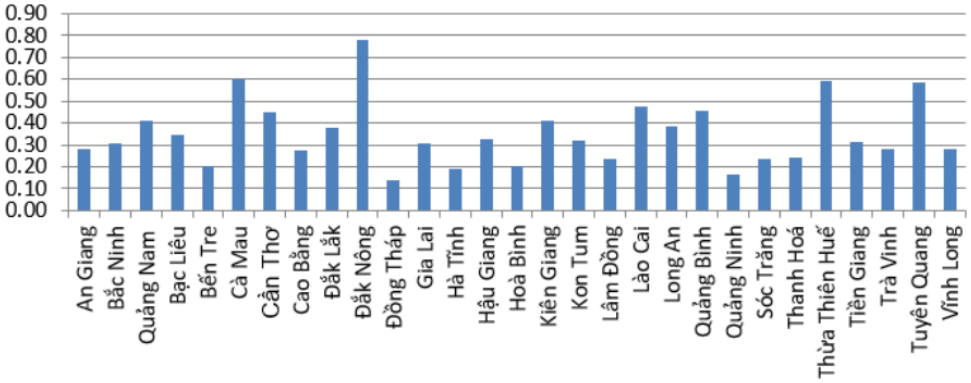
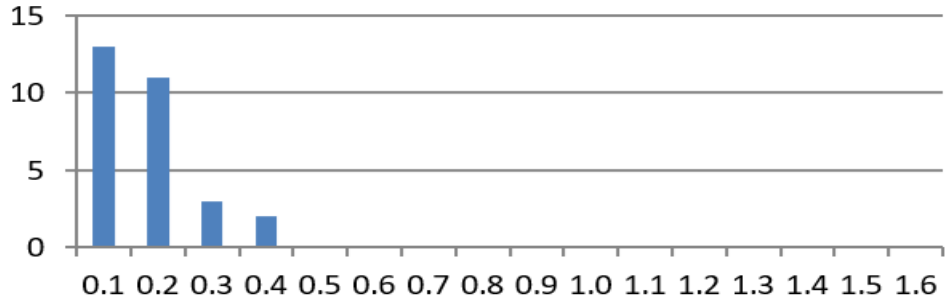


***Figure 3.5 - The inter-annual volatility of the investment budget of the 29 studied provinces**.*
Volatility is measured by Coefficient of Variation (CoV) and presented on the y-axis.

a) Total provincial investment budget



b) Climate change investment budget

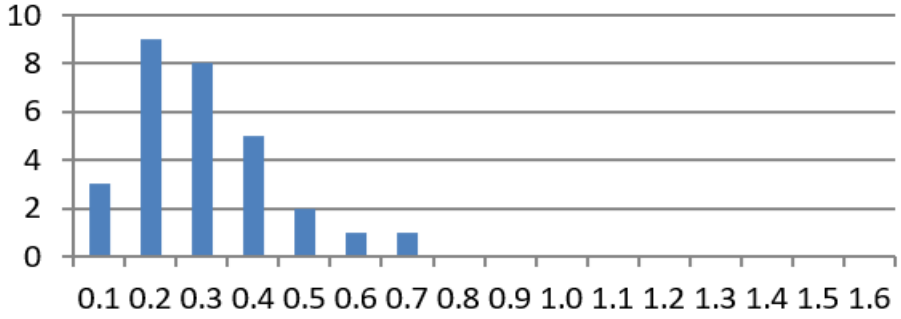
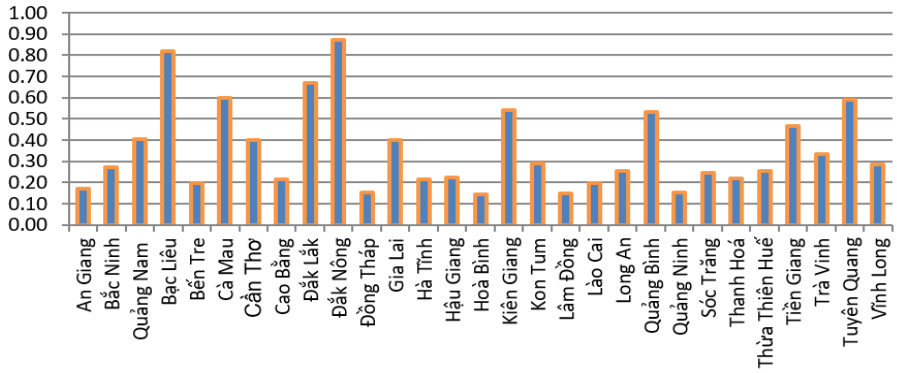


Figure 3.6 - The number of provinces in Coefficients of Variation categories
Coefficients of Variation categories in 0.1 increments from 0 – 0.1, 0.1 to 0.2 etc. on x-axis

3.5.3 Sources of volatility

The climate change investment budget is formed from domestic and ODA sources. The volatility analysis can be repeated breaking down to the climate investment budget into its two components to help identify where the volatility is derived. Thus, CoV were calculated for the 29 provinces for the separate domestic and ODA components of the climate investment budget (Figure 3.7). In general the volatility of the ODA component appears to be higher than the domestic component of the budget. However, there are a few provinces where high domestic volatility is apparent, but with low ODA volatility (e.g. Dak Nong, Bac Lieu).

a) Domestic investment climate budget



b) ODA investment climate budget

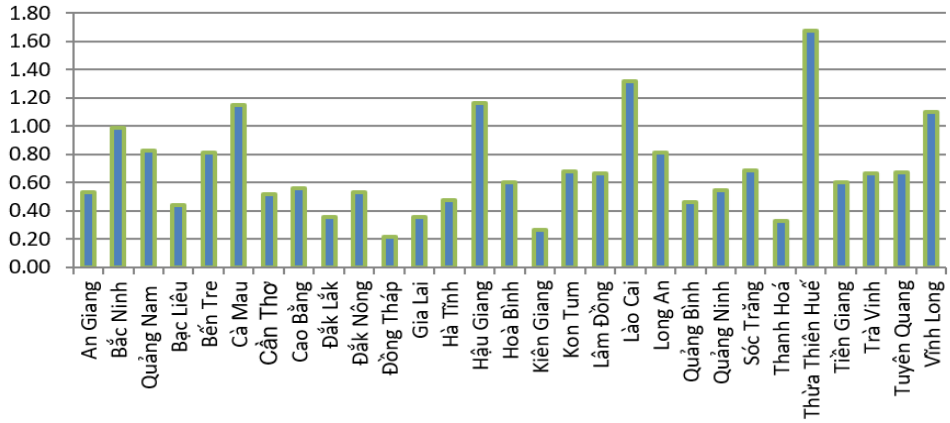
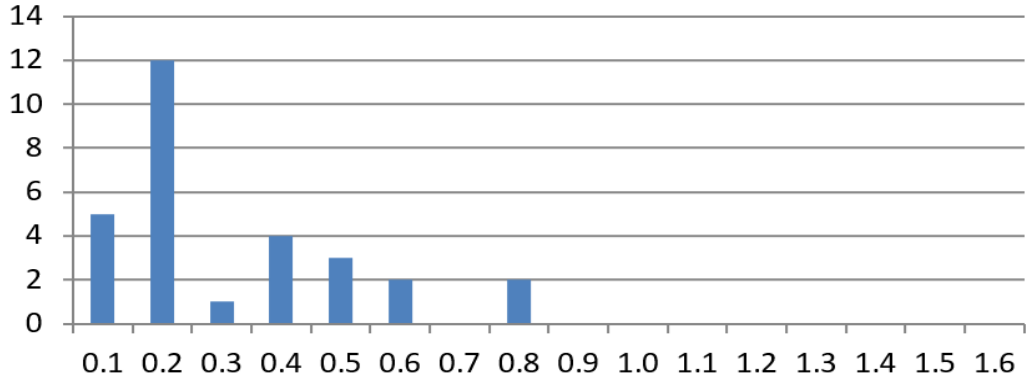


Figure 3.7 - The inter-annual volatility of the investment budget of the 29 studied provinces.
Volatility measured by Coefficient of Variation (CoV) on the y-axis.

Viewing the volatility of the provinces in relation to the number of provinces in different CoV categories (Figure 3.8), difference between the components become apparent. The mode (most frequent category) for the domestic climate budget is 0.2-0.3 CoV, whereas the mode for ODA is 0.6 to 0.7 CoV, indicating generally higher volatility in the ODA component. Nine provinces have higher ODA volatility than the highest domestic volatility and CoV for ODA in one province is 1.6 which is very volatile (with the Standard Deviation being much more than the mean). Also of significance looking back at the total provincial investment budget volatility, in which 80% of provinces are within 0 to 0.2 CoV scores, 59% of provinces are in this category for domestic climate budget but only 7% of provinces for the ODA climate budget.

a) Domestic investment climate budget



b) ODA investment climate budget

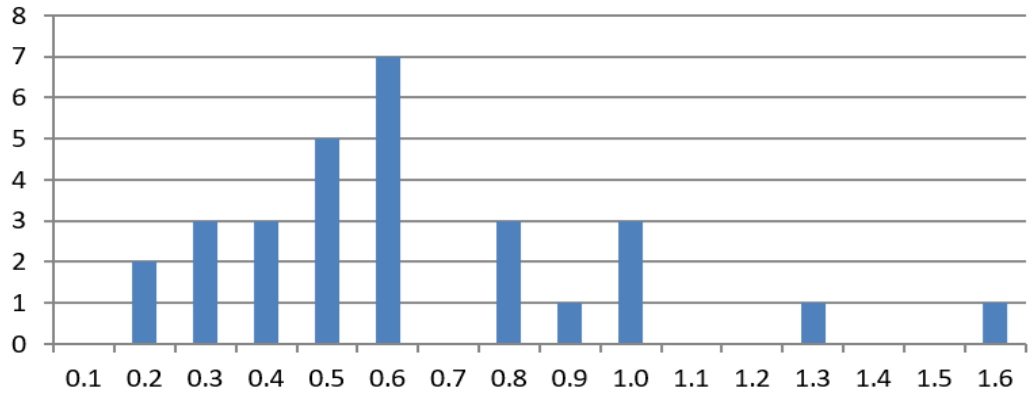


Figure 3.8 - The number of provinces in Coefficients of Variation categories.
With Coefficients of Variation categories in 0.1 increments from 0 – 0.1, 0.1 to 0.2 etc. on x-axis.

In most provinces the volatility in the climate budget is higher than the total provincial investment budget. In most provinces the source of climate budget volatility is predominantly from ODA investments, though there are a few exceptions in which climate budget volatility is derived mainly from domestic budgets.

The projects which constitute the climate change budget are projects implemented in strict accordance with the allocation plan under the P-MTIP, and selection of priority projects form that pool. However, these selected projects are implemented erratically, with large disbursement in some years, but little or no disbursement in other years due to central and local capital allocation etc. Sometimes the change in climate change budget is related to the beginning of a major project (which leads to a significant increase in climate change budget for that year) or completion of a major project.

Using a few of the more volatile provinces as examples, in Ca Mau province "The project of anti-erosion causing sedimentation, planting mangroves to protect sea dikes in Tran Van Thoi district" was implemented in the period 2011-2015 and the period 2016 is the final stage with total expenditure in 2016 of 6 billion VND. However, the project "Ca Mau City Reciprocal Urban Upgrading Project (NUUP)" started in 2017 with a huge ODA capital of 242,204 billion VND, dramatically increasing the climate change budget. In Dak Nong due to severe drought, the project" Gia Nghia reservoir, Gia Nghia Town, Dak Nong Province" was prioritized and allocated a very large capital of 500 billion for 2018. In Bac Lieu and number of urgent priority projects were implemented due to natural disasters and flooding.

Some relatively volatile provinces have a peak in the 2020 planned climate change related expenditure. The year 2020 is the last year of the 2016 – 2020 P-MTIP period, thus central and local funds need to be distributed in the final year, including contingencies (normally ~10%). This can be coupled with significant funding for new projects, leading to high planned expenditure for 2020. For example, in Lao Cai province a 367 billion VND central budget allocation to the national target program for new rural areas and sustainable poverty reduction was made from ODA 2020. For Tuyen Quang province a new 2020 allocation of an additional nearly 2,000 billion by the central budget (of which about 500 billion is to be implement through two national target programs: sustainable poverty reduction and new rural construction). In addition, ODA supply increased in 2020, including new projects such as urban projects in the northern mountainous region, clean water and sanitation projects. The coincidence of completing the disbursement of P-MTIP in 2020, coupled to significant new projects, has led to high planned expenditure in some provinces in 2020, contributing to volatility during the studied 2106 – 2020 period.

3.5.4 Budget volatility and planning

High budget volatility may not be a good characteristic for resourcing a long-term climate response. If the budget planning process is creating the volatility then there would be a need to reform the process and attempt to gain mid-term stability in climate change budgets. However, the relatively high volatility found for the provinces in their climate change budgets seems to be mainly related to the start or ending of some large projects. Many are started due to urgent problems that arise (e.g. emergency drought response in Dak Nong 2018 and flood control in Bac Lieu in 2017), but if that coincides with P-MTIP final disbursements, then the annual expenditures can be higher than other periods during the P-MTIP cycle.

With volatility of climate change budgets being generally higher then overall provincial budgets, it would seem that this volatility is driven mainly by responsiveness to prevailing threats or impacts, rather than some structural planning or budgeting problem, although it can be influenced by the P-MTIP cycle. Whist inter-annual stability in resources can be expected to help deliver a more financially efficient climate change response, the proactive response to climate threats and impacts in budgeting seems to be the major determinant of climate budget volatility. With ODA being the more volatile component of the climate change investment budget, compared to the domestic sources, it seems that ODA is used to support this shorter-term proactive response. There is a balance to be made between the efficiency gains related to inter-annual stability in funding flows, with volatility created by more reactive and responsive budgeting. However, volatility-inducing proactive budgeting is necessary in some cases, for example, following extreme events and disaster situations when unplanned response and recovery activity is required rapidly.

3.6 Conclusions

A. Of the 29 provinces analysed there was considerable diversity in scale of the climate change investment budget in relation to the overall provincial investment budget; the folio for each province provides an insight into provincial climate change budgets.
B. The 29-province climate change investment budget increased steadily from 2016 – 2020, by about 53% during this period. This rise was mainly due to increasing ODA which nearly tripled during this period; ODA contribution to the investment budget increased from 24 to 46% from 2016 - 2020. Domestic investment was largely static in absolute terms, but decreased as a proportion of the climate change investment budget from 76% to 54% from 2016 to 2020.

C. Adaptation was the dominant purpose of the provincial climate budget, representing over 90% of the budget in all years. Mixed adaptation and mitigation investment made up much of the remainder, but always staying below 10%. Exclusively mitigation projects represented no more than 1.1% of the total climate change budget in all years.
D. Over 50% of the climate change delivery (CCD) was focussed at four tasks which received over 2,000 billion VND per year in the 29 provinces: Transport, Residential and city area resilience, Irrigation, and River dyke and embankments.
E. Budget analysis of longer term climate change budget trends (2010 – 2020) in three provinces demonstrated a general trend of increasing climate change related budget, a maintained dominance of domestic investment sources and a consistent focus on adaptation. A dominance in expenditure on climate response (CCD pillar) has been maintained, receiving more than 90% of the climate change related budget in all years. However, the targeting of the CCD budget to specific tasks varies between the three provinces suggesting provincial-level budget planning is shaping the climate change budget.
F. Inter-annual volatility of the climate change budget was higher than the overall provincial budget. This volatility may reduce efficiency of the climate change response, and was caused mainly by fluctuation in ODA. From analysis of provinces with high volatility, the cause seemed to be the starting or completion of large projects which significantly increased the annual climate budget, sometimes coupled with disbursements related to the P-MTIP cycles. Commencement of some large investments was stated to be a response to climate change related impacts such as flooding and drought.

4 Ministry climate change related budgets

4.1 Introduction

This chapter presents the climate change budget and policy information collected from 6 ministries. The ministries were:

- Ministry of Agriculture and Rural Development (MARD)
- Ministry of Natural Resources and Environment (MONRE)
- Ministry of Transport (MOT)
- Ministry of Industry and Trade (MOIT)
- Ministry of Construction (MOC)
- Ministry of Science and Technology (MOST)

The ministries were selected to include most climate change related expenditures. Five of these ministries were analysed during the CPEIR of 2015 and these have budget data from 2010 to 2020. The addition to this report is the Ministry of Science and Technology (MOST) which manages scientific research, technology development and innovation activities and intellectual property. However, it is recognised that ministries which are not included in this analysis will have some climate related expenditures too. Consequently, the study covers much of the ministerial climate change budget, but some unknown proportion is missing.

Similar to chapter 3 on provinces, this chapter presents information at two levels. Firstly, it presents a climate budget and policy information for each ministry, using the data provided by the ministry; this provides a ministry specific characterisation of the climate change budget. Secondly, the chapter provides an analysis of the information collated together for all the 6 analysed ministries. This provides a consolidated picture of the climate change budget of the selected ministries.

4.2 Ministry data considerations

The data collated for the ministries' climate change budgets was not complete and this section outlines the data which is lacking.

The aim for the six ministries was to get data on all climate change related activities in years 2010 – 2020, divided into investment and recurrent budgets, and from ODA and domestic sources. In addition, the total ministry investment and recurrent budget from ODA and domestic sources for 2010 to 2020 was also requested.

Rather than obtaining the full list of investment and recurrent budget lines, which then be reduced by the team to climate-related budget lines, some data received from ministries was supplied as the selected climate change related budget lines as determined by the ministry. There was the possibility for inconsistency between the climate budget lines of the ministries, in comparison to the budget lines selected by the CPEIR team. This would especially be the case where budget lines would have a low proportional weighting of climate change related expenditure within a larger budget total, as the climate change components with the project may be masked to ministry officials in charge of data collection.

Table 4.1 identifies the specific missing sub-components of the data set broken down by ministry:

Table 4.1 - The budget data sub-components missing, per ministry.

Ministry	Missing data
MOC	• Lack of data for 2011 and 2012 for both Investment and Recurrent (both domestic and ODA), • Lack of data total ministry budget 2011, 2012
MOIT	• Lack of domestic investment 2011-2015 (In which, 2011-2013: No data, 2014-2015, there are projects but not disbursement) • In 2015, there is no data on ministry investment expenditure -> the total value of the ministry's total budget = total climate change projects
MONRE	• Lack of (domestic and ODA) investment 2014-2020
MOT	• Lack of domestic recurrent 2010-2013 • Lack of Ministry' total budget on both investment and recurrent expenditure data 2010-2013

The severity of the missing data sub-components on the ministry climate budget characterisation is unclear as the magnitude of the missing sub-components in unknown. Much of the missing information is in the period 2010 – 2015, and thus it is proposed that representations of data over this period are only indicative. There is more confidence in the data from 2016 – 2020. For MOST, only data over the period 2016-2020 is considered within this CPEIR review.

4.3 Climate budget of individual ministries

A standard format climate budget folio was put together for each analysed ministry The folio provides information on six main areas:

1) General introduction.
2) Size and source of climate change investment budget.
3) The allocation to adaptation and mitigation.
4) The allocation to climate change tasks
5) The main ODA project expenditures
6) The policy and planning instruments.

The ministry folios are presented in this folio format (see Annex 4) and the key points are presented in Table 4.2.

Table 4.2 - Key points on the climate change budget drawn from the ministry folios; the ministries are ranked in order of decreasing size of climate change related budget.

Ministry	Key points
MARD	• The main climate change expenditure from 2010 - 2020 was irrigation (CCD1.3) accounting for 73% of the CCD budget. Other targets were Rural development and food security (CCD1.6; 5.5%), disaster risk reduction (CCD2.6; 4.8%) and Forest development (CCD1.7; 4.5%), River embankment (CCD1.4; 3.9%) and Saline intrusion (CCD1.2) accounts for 2.1%. • Large climate change related budget averaging over 5,000 billion VND per year 2010 – 2020; budget sourced mainly from domestic investment. • Doubling of climate change budget from 2017 – 2020. • Climate change budget represents 36 – 51% of total ministry expenditure 2016 – 2020.

Ministry	Key points
	• Over 90% targeted at adaptation (except for 2015) and at Climate change delivery (CCD) tasks.
MOT	• Transport infrastructure works represent more than 95% of the climate related budget. • Large and variable climate change related budget of over 3,000 billion VND per year 2016 – 2020, mainly from investment sources. • Climate change budget represents between 17 – 25 % of total ministry expenditure 2016 – 2020. • Mostly targeted at adaptation and at Climate change delivery (CCD) tasks related to transport.
MONRE	• Diversity in climate change related expenditure which covers all pillars. Over 50% budget allocated to Science, society and technology (ST), and 22% to Policy & governance (PG) from 2016 – 2020. • The largest of the ST and PG allocations were Hydrometeorology and early warning system and climate change projection (ST1.2; 37%) and Information and database development (ST1.1; 25%). • Climate change delivery (CCD) tasks represented 16% of the budget 2010 – 2020, with the largest allocation area of Waste management and treatment. • Medium-sized climate change budget averaging 450 – 850 billion VND per year 2016 – 2020; budget mainly from domestic sources. • Climate change budget represents 48 - 72% of total ministry expenditure 2016 – 2020; climbing steadily from under 20% in 2010 - 2013. • Increasing budget allocated mixed adaptation projects (over 50% in 2017 – 2020), rather than pure adaptation projects.
MOIT	• The climate change budget 2010-2020 focuses mostly on Science, society and technology (ST) and Climate change delivery (CCD). • CCD investments are mainly in Energy efficiency (CCD3.2), and ST in Technology for energy efficiency and low GHG emission (ST1.5); however, there are a variety of other smaller categories of expenditure. • Climate change budget averages 57 billion VND per year 2010 – 2020, although there is high variability between years. • Climate change budget represents over 85% of total ministry expenditure 2017 – 2020. • Mostly targeted at mitigation since 2016, with a mix of and at Climate change delivery (CCD) and Science, society and technology (ST) tasks.
MOC	• The climate budget was mainly Science, society and technology (ST), with about a quarter allocated to Climate change delivery (CCD) and some Policy and governance (PG). • The main targets of budget for ST and PG task from 2010 - 2020 were Technology for energy efficiency and low GHG emission (ST1.5; 55%), Survey and assessment on CC impacts (ST1.4, 17%), Information and database development (ST1.1, 17%), Action and Sector Plans (PG 3.1, 11%), and Survey and evaluate the impact of climate change (ST1.4, 6%). • Climate change budget around 30 billion VND per year 2016 – 2020; budget sourced mainly from domestic investment. • Climate change budget represents under 12% of total ministry expenditure 2016 – 2020. • The focus is mitigation, but with both adaptation and mixed adaptation and mitigation projects.

Ministry	Key points
MOST	• All the climate change related budget was in the Science, society and technology (ST) pillar across both adaptation and mitigation. • The main targets of ST from 2016 - 2020 were Technology for energy efficiency and low GHG emissions (ST1.5, 42%), Consolidate biological resources and genetic resources (ST1.3) accounting for 36%, Improve weather and meteorological risk forecasting (ST1.2) accounts for 14%, Build information and database (ST1.1) for 6% and Survey and evaluate the impact of CC (ST1.4) accounts for 2% • Climate change budget is variable and between 30 – 220 billion VND per year 2016 – 2020. • Steady increase in proportion of climate change investment in relation to total ministry budget, from under 20% in 2016 – 2017, to 25 – 50% 2018 – 2020.

The folios demonstrate significant differences between ministries. Two ministries (MARD and MOT) dominate the contributions to the climate budget reliably contributing over 8,000 billion VND per year of climate change related expenditures. Expenditures from these two ministries are also both dominated by climate response delivery (CCD related tasks). These two ministries can be recognised as key delivery institutions for climate change, contributing about equal amounts and dispersing over 80% of the climate change budget.

MONRE is increasingly aligning expenditures to climate change creating a climate related budget of 450 – 850 billion VND per year 2016 – 2020. This budget is diverse, covering adaptation, mitigation and joint adaptation/ mitigation, as well as spanning the three main themes (ST, PG and SST). This aligns to its broad mandate across natural resources and environment, and also its diverse mandate under climate change which includes responsibilities related to laws, plans and strategies, international agreements including NDCs, and supporting the NCCC.

The remaining ministries of MOC, MOIT and MOST have smaller budgets (< 3% of the MARD and MOT combined climate budget). For MOC, the climate change budget represents about 12% of the overall ministry budget and covers all main themes (CCD, ST and PG), suggesting that the climate change agenda is well-established within the ministry but has not been mainstreamed widely across many relevant activities so far. MOST and MOIT have a larger proportion of their budget aligned to climate change with both adaptation and mitigation components.

4.4 Combined climate change budget of ministries

Combining the data from the 6 ministries provides a broader picture of the central climate change response; although noting the data gaps in the selected ministries and the lack of inclusion of all ministries. There appears to be no general trend in ministry climate change related budget over the studied period (Figure 4.1). The climate budget does however appear to be relatively stable 2016 – 2020, representing between 8,000 – 13,500 billion VND, and between 26 and 38% of the combined total ministry budget. However, domestic sources have become increasing important in the budget during the period 2016 - 2020. The year 2018 appears to be a tipping point when domestic sources became more important than ODA sources; domestic sources contributed over 75% of the climate change budget in 2019 and 2020. This lowering of ODA may be due to the direct allocation of ODA to provinces, thus this amount does not appear within the ministry budget.

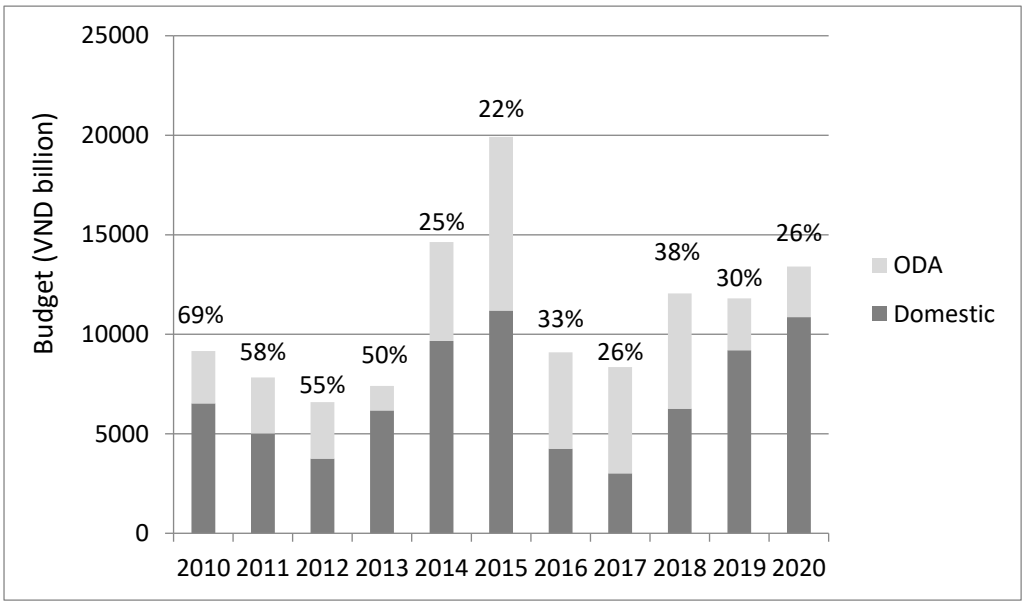


Figure 4.1 - The climate change related budget (VND billion) of the 6 selected ministries. *Annual budgets are divided into ODA and domestic sources for 2010 to 2020. The figures on top of the bars represent the percentage that the climate change budget represents of the combined total ministry budgets. Data prior to 2016 is indicative only, due to data constraints in those years.*

Most of the expenditure is targeted at adaptation, this has been over 70% of the climate change budget from 2016 – 2020 (except for 2017 when it was 57%; see Figure 4.2). The remainder of the budget beyond adaptation is composed of around equal allocations to mitigation and to a mix of adaptation and mitigation. In simple terms for 2019 and 2020, the climate budget was composed of approximately 75% adaptation (over 10,000 billion VND) and then the remainder an equal division between mitigation and a mix of adaptation and mitigation.

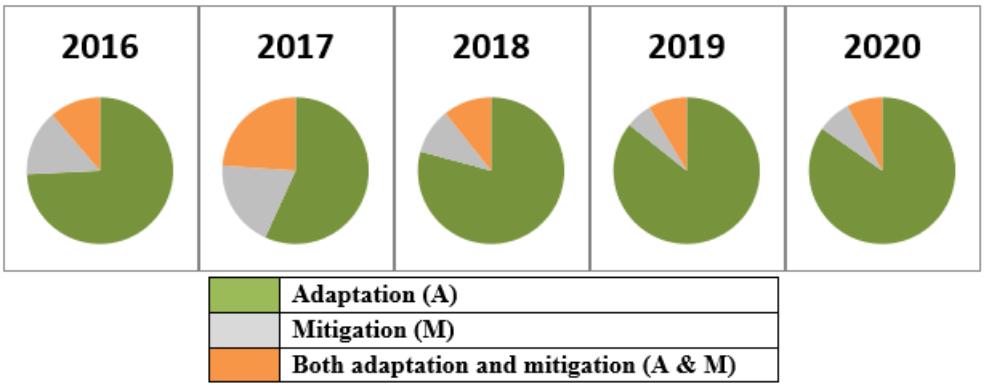


Figure 4.2 - The proportion of the combined ministry climate change relate budget targeted at adaptation, mitigation and mixed adaptation and mitigation from 2016 - 2020.

Expenditure on the Climate change delivery (CCD) theme averaged over 90% of the climate change budget from 2016 – 2020; the remainder was Science, society and technology (ST) and Policy and governance (PG). CCD expenditures were dominated by two tasks which each averaged over 4,000

billion per year 2016 - 2020: these two tasks were irrigation (CCD1.3) and transport (CCD2.3) (Figure 4.3). These two tasks represent the predominant climate delivery tasks of the ministries with the largest climate change budget; MARD (irrigation) and MOT (transport)[10].

CCD tasks outside irrigation and transport represented 17% of the CCD budget over 2016 - 2020. These tasks were spread widely across climate change delivery tasks with all being 10 times smaller than either irrigation or transport tasks. The largest of these tasks were Strengthening disaster risk reduction (CCD2.6, 4.2% of CCD budget), Rural development and food security (CCD1.6, 3.1%) and River dyke and embankments (CCD1.4, 2.4%).

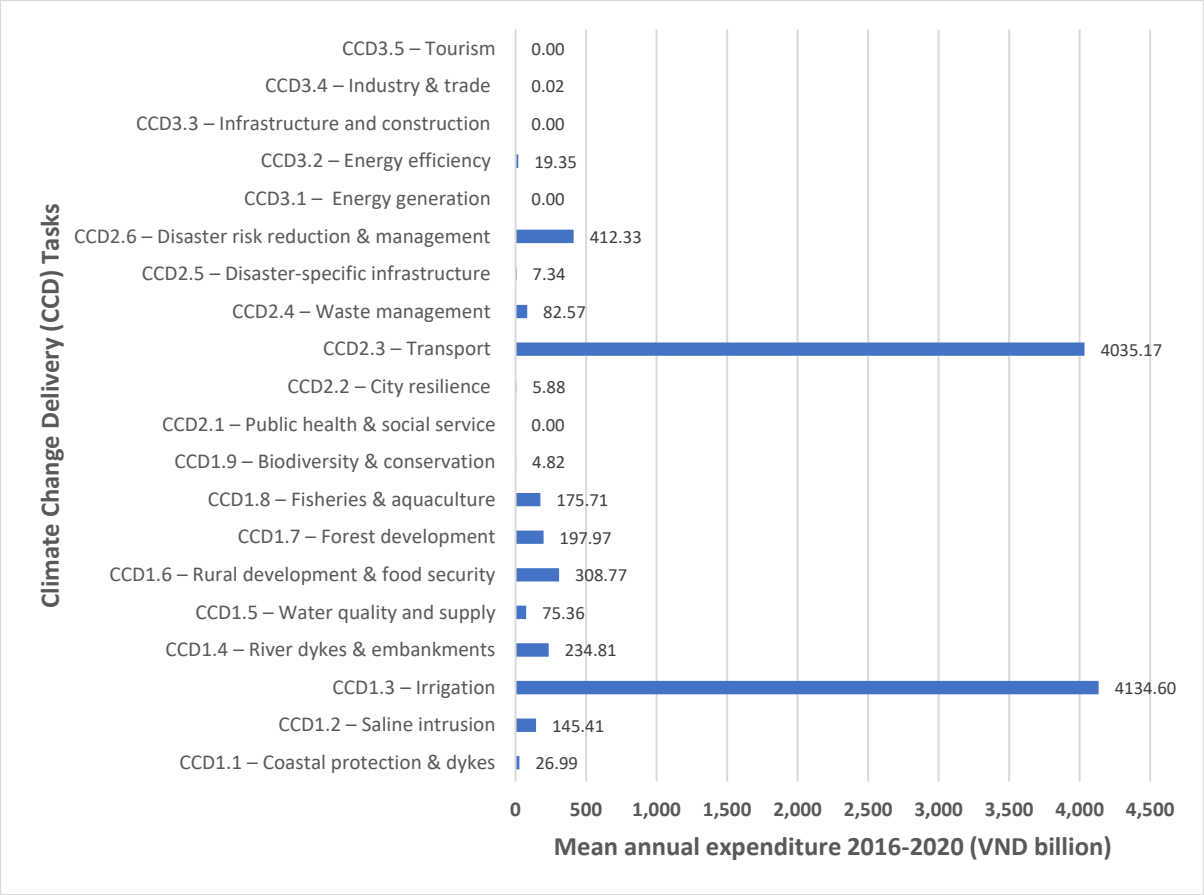


Figure 4.3 - Mean annual expenditure on Climate change delivery (CCD) tasks of six ministries from 2016- 2020.

Over 80% of the expenditures are in CCD1.3 (irrigation) and CCD2.3 (transport).

Although ODA has decreased in the last years – representing approximately 20% of the climate change budget in 2019 and 2020 – there have been some significant multi-year investments by MOT and MARD. The five largest ODA in terms of climate budget (2010-2020) are:

1. Connection of the central Mekong Delta Project (2012-2020, 10.3%, MOT)
2. Ha Noi urban railway: Cat Linh - Ha Dong line (2015-2020, 9.5%, MOT)
3. Local Road Assets Management Project (LRAMP) (2017-2020, 4.1%, MOT)

[10] Though to note, the challenge of coding CCD2.3, as explained in section 2.2 under stage 3 of the coding process.

4. Disaster risk management project (WB5) (2011, 2014-2020, 3.1%, MARD)
5. Integrated Rural Development Project for Central Provinces (2010-2020, 3.0%, MARD).

4.5 Conclusions

Based on the analysis of the 6 selected ministries, and being mindful of the data constraints, the following conclusions can be drawn:

A. The climate change budget appears to be relatively stable from 2016 – 2020, representing between 8,000 – 13,500 billion VND, and between 26 and 38% of the combined total ministry budget.
B. The Climate change delivery (CCD) theme averaged over 90% of the climate change budget from 2016 – 2020; the small remainder was Science, society and technology (ST) and Policy and governance (PG).
C. Two tasks represent >80% of the CCD expenditures are in CCD1.3 (irrigation) and CCD2.3 (transport). The large size of these budgets reflect the wide scale of these interventions and also the high cost of these infrastructure-related tasks.
D. The climate change budget was mainly focussed on adaptation. The 2019 and 2020 climate change budget was composed of approximately 75% adaptation (over 10,000 billion VND) and then the remainder was an equal division between mitigation and a mix of adaptation and mitigation. However, the coding of CCD2.3 (transport) as adaptation would lead to over-accounting of adaptation expenditure and under accounting of mitigation expenditure.
E. Mitigation has been a relatively small component of the climate budget never reaching >15% of the budget from 2016 – 2020, and being below 8% in 2019 and 2020, though due to coding issues this is under accounted and may be more. Investment in mitigation is not a public sector priority as per climate change policies, but is expected primarily in the private sector.
F. MARD and MOT dominate the climate change budget with combined 8,000+ billion VND per annum expenditures from 2016-2020, representing over 80% of the total climate change budget. The MARD and MOT projects are directed predominantly at two climate change delivery tasks: irrigation (CCD1.3) and transport (CCD2.3), respectively.
G. The other ministries had more diverse expenditures, especially MONRE, covering adaptation, mitigation and mixed adaptation and mitigation and across a range of tasks in CCD, ST and PG themes.

5 Allocation of climate change budgets to policies

5.1 Introduction

The previous chapters have focussed on the magnitude and breakdown of climate change related budgets in ministries and provinces. This chapter focuses on the linkage between the climate-related budgets and Climate Change Strategy, Green Growth Strategy and Plan for Implementation of the Paris Agreement (PIPA). Different nomenclature is used in these policies, including "strategic actions" (NCCS), "solutions" (VGGS) and "tasks" (PIPA). The magnitude and targeting of ministry and provincial climate budgets to policies is identified through quantitative analysis and contextual assessment of case studies.

The budget information collected from provinces and ministries, which was coded to tasks in the climate change typology, can be re-categorised and linked to national climate related policies (NCCS, VGGS, PIPA and national and sectoral action plans). This linking is constrained by the scope of the typology (Table 2.2), as explained in section 2.3. For provinces, an additional linkage between provincial climate change related budgets and provincial action plans can be made. The information presented below provides a detailed exploration of the sizeable portfolio of climate related expenditure and policy prioritisation through a budget lens.

5.2 Links between national policy and budgets

The relationship between the NCCS, VGGS and PIPA and the climate change related budgets derived from the ministries and provinces were analysed. This allows the allocation of climate change related budget to national policies to be determined. In addition, national policy areas with low level of allocation can be identified with a view to strengthening the response in these areas. This section reports on the links between national policies and budgets for ministries and provinces.

To produce the following analysis on NCCS, VGGS and PIPA, the total climate change related investment budget from 2016 – 2020 was used for 6 ministries and for 29 provinces. The task level budgets of the typology were linked to the strategic actions, solutions or tasks of the respective policy instrument using a cross coding system (Table 5.1). This approach was similar but not identical to that used for NCCS and VGGS in the CPEIR 2015. Review of the coding process suggested two improvements. Firstly, in order to include only climate-related investment in transport which are mitigation based as identified in the typology task description, the removal of all adaptation-based transport budgets from CCD2.3 was undertaken[11]. Secondly, if one typology task is coded into two, or three different policy actions, solutions or tasks then an equal amount was allocated to each action, solution or task (without further information, equal division of typology tasks was the only option).

Some of the original climate-related investment budget did not code from the methodology tasks to the solutions or tasks of the VGGS and PIPA, because there was no solution or task of the policy which was clearly aligned to the typology task (in Table 5.1 several boxes in the VGGS and PIPA columns remain empty). The overall climate change response represents a broad approach as in the NCCS, which informed the typology. However, the VGGS is targeted at particular areas, in particular GHG emissions mitigation-relevant solutions, whereas not all actual adaptation actions link to a solution in

[11] *Task CCD2.3 includes all transport relevant climate change interventions, however, only mitigation-based transport interventions are included in NCCS, VGGS (as can be seen in Table 5.1). Thus adaptation focussed investments were removed from CCD2.3 to align CCD2.3 with the NCCS and VGGS. PIPA has no transport-specific solution and thus no CCD2.3 allocation is included in PIPA budget estimates.*

the VGGS, whilst it does contain sustainable development solutions that are not captured in the typology tasks. The PIPA tasks include national programmes in which climate change is mainstreamed but mainstreaming is not explicit in the CPEIR typology. Thus, total climate related budgets of these policy instruments are less than the task-based climate expenditure that was found; this difference is identified in each section below. The overall analysis provides allocation to NCCS, VGGS and PIPA strategic actions, solutions and tasks separately for ministries and provinces.

Table 5.1 - The links between the CPEIR typology and the National Climate Change Strategy (NCCS), Viet Nam Green Growth Strategy (VGGS) and Plan for Implementation of the Paris Agreement (PIPA).

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
Policy & Governance	***PG1: A national framework for adaptation and risk reduction.***	*PG1.1 Develop CC adaptation guidelines and technical regulations*	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)*		
		PG1.2 Develop/Adjust policy, planning and mechanism for CC response and implementation across government, enterprises and communities	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)*		*Update the contribution to climate change adaptation in the NDC for the periodic global stocktake (PIPA17)* *Develop National Adaptation Plan (NAP) (PIPA18)*
		PG1.3 Manage and monitor implementation of Adaptation policies	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)*		
	PG2: A comprehensive consistent national mitigation policy framework	*PG2.1 Establish policy, tax and incentive structure for new and clean energy, energy efficiency and low GHG emission*	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Review and adjust master plans for the production sectors and gradually limit the development of "degrading" economic sectors while creating favourable conditions for new green production sectors (GG6)*	*Develop, complete and revise policies to encourage development of solar energy, wind energy projects; Implement action plan of the renewable energy development project to 2030, with vision to 2050. (PIPA2)*
		PG2.2 Develop/ Adjust sectoral plan and coordinate implementation among departments, enterprises, and provinces	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)* *Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Review and adjust master plans for the production sectors and gradually limit the development of "degrading" economic sectors while creating favourable conditions for new green production sectors (GG6)*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)*
		PG2.3 Manage and monitor implementation of Mitigation policies	*Increase the role of Government in climate change response –*	*Mobilize resources to implement the Green Growth Strategy (GG14)*	*Implement GHG inventory and periodic assessment of Viet Nam's efforts in mitigation of GHG emissions to update NDC*

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
			integration and institutional capacity (CC6) *Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*		*and take stock of the global stocktake in 2018.(PIPA1)* *Review existing regulations and develop a Decree on the roadmap and modality for Viet Nam's participation in global GHG emission mitigation (PIPA3)* *Establish and develop a domestic carbon market and other mechanisms on cooperation in GHG mitigation pursuant to Article 6 in the Paris Agreement; Pilot implementation in potential sectors (PIPA4)*
	PG3: Action Plans and Impact Assessment at national, provincial, and sector level to translate policy and governance into activity and delivery.	*PG3.1: Action and Sector Plans*	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)* *Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Review and adjust master plans for the production sectors and gradually limit the development of "degrading" economic sectors while creating favourable conditions for new green production sectors (GG6)* *Economic and efficient utilization of natural resources (GG7)*	
		PG3.2: CC Impact assessments	*Increase the role of Government in climate change response – integration and institutional capacity (CC6)*	*Review and adjust master plans for the production sectors and gradually limit the development of "degrading" economic sectors while creating favourable conditions for new green production sectors (GG6)* *Economic and efficient utilization of natural resources (GG7)*	*Review available information and data on adaptation, loss and damage, propose additional research and information and methods of data management and sharing to facilitate the development and update of adaptation component in the NDC report (PIPA19)* *Assess risks and vulnerability, determine adaptation needs and needs to address loss and damage (L&D) issues (PIPA20)*
		PG3.3: CC Capacity building	*Increase the role of Government in climate change response –*	*Review and adjust master plans for the production sectors and gradually limit the development of*	

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
			integration and institutional capacity (CC6)	*"degrading" economic sectors while creating favourable conditions for new green production sectors (GG6)*	
	PG4: Legal framework to implement CC policy (all elements of CC/GG policies)	*PG4.1: Mitigation instruments*	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Economic and efficient utilization of natural resources (GG7)*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)*
		PG4.2: Adaptation instruments	*Increase the role of Government in climate change response (CC6)*		
		PG4.3. Mitigation and Adaptation Instruments	*Increase the role of Government in climate change response (CC6)*		
	PG5: International cooperation, integration and diversification and strengthening of CC investment effectiveness	*PG5.1 Strengthen cooperation and partnership with international community on CC issues*	*International cooperation and integration to enhance the country's status in climate change issues (CC9)*	*International cooperation (GG17)*	
		PG5.2 Effective management and coordination of foreign and domestic investment	*International cooperation and integration to enhance the country's status in climate change issues (CC9)*	*Mobilize resources to implement the Green Growth Strategy (GG14)*	
Scientific, Technological and Societal Capacity (ST)	***ST1: Develop science and technology as a foundation for formulating policies, assessing impacts, and identifying measures on climate change adaptation and mitigation.***	*ST1.1 Information and database development.*	*Scientific and technological development for climate change response (CC8)*	*Promote technological innovation and stimulate cleaner production (GG10)* *Study to develop science and technology, issuing a system of economic and technical standards and establish information /data centre on green growth (GG16)*	
		ST1.2 Hydrometeorology and early warning system and climate change projection	*Proactive disaster preparedness and climate monitoring – early warning, DRR (CC1)* *Scientific and technological development for climate change response (CC8)*		

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
		ST1.3 Biological & genetic resource strengthening.	*Scientific and technological development for climate change response (CC8)* *Food and water security (CC2)*		
		ST1.4. Survey and assessment on *CC impacts*	*Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)* *Scientific and technological development for climate change response (CC8)*		*Review available information and data on adaptation, loss and damage, propose additional research and information and methods of data management and sharing to facilitate the development and update of adaptation component in the NDC report (PIPA19)* *Assess risks and vulnerability, determine adaptation needs and needs to address loss and damage (L&D) issues (PIPA20)*
		ST1.5 Technology for energy efficiency and low GHG emission	*Greenhouse gas emission reduction to protect global climate system (CC5)* *Scientific and technological development for climate change response (CC8)*	*Promote technological innovation and stimulate cleaner production (GG10)*	
	ST2 – Improve awareness of climate change	*ST2.1 Climate change awareness building in curriculums of primary to higher education establishments.*	*Community capacity development to respond to climate change – community capacity and livelihoods, public health and knowledge exchange (CC7)*	*Communication, awareness raising and encouragement of support to implementation (GG1)*	
		ST2.2 Awareness of climate change in diverse education and training initiatives for postschool aged learners	*Community capacity development to respond to climate change – community capacity and livelihoods, public health and knowledge exchange (CC7)*	*Communication, awareness raising and encouragement of support to implementation (GG1)*	
	ST3: Develop community capacity for responding to climate change.	*ST3.1 Support livelihood building for communities in the context of CC*	*Community capacity development to respond to climate change – community capacity and livelihoods, public health and knowledge exchange (CC7)* *Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)*	*Communication, awareness raising and encouragement of support to implementation (GG1)* *Develop the new rural model with lifestyles in harmony with environment (GG12)* *Human resource training and development (GG15)*	

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
		ST3.2 Capacity across whole community in climate change response	*Community capacity development to respond to climate change – community capacity and livelihoods, public health and knowledge exchange (CC7)*	*Communication, awareness raising and encouragement of support to implementation (GG1)* *Develop the new rural model with lifestyles in harmony with environment (GG12)* *Promoting sustainable consumption and building green lifestyles (GG13)* *Human resource training and development (GG15)*	
Climate Change Delivery	***CCD1 – Natural resources***	*CCD1.1 – Coastal protection and coastal dykes*	*Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)*		*Implement National Target Program to Respond to Climate Change and Green Growth (PIPA21)*
		CCD1.2 – Saline intrusion	*Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)* *Food and water security (CC2)*		*Implement National Target Program to Respond to Climate Change and Green Growth (PIPA21)*
		CCD1.3 – Irrigation	*Food and water security (CC2)*	*Reduce greenhouse gas emissions through the development of sustainable organic agriculture, improved competitiveness of agricultural production (GG5)* *Development of sustainable infrastructure for: transportation, energy, irrigation and urban works (GG9)*	*Implement National Target Program to Respond to Climate Change and Green Growth (PIPA21)*
		CCD1.4 – River dyke and embankments	*Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)*		*Implement National Target Program to Respond to Climate Change and Green Growth (PIPA21)*
		CCD1.5 – Water quality and supply	*Food and water security (CC2)*		
		CCD1.6 – Rural development and food security	*Food and water security (CC2)* *Greenhouse gas emission reduction to protect global*	*Reduce greenhouse gas emissions through the development of sustainable organic*	*Implementation of GHG mitigation activities in agricultural and rural*

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
			climate system – RE systems, energy saving, agricultural and solid waste management (CC5)	*agriculture, improved competitiveness of agricultural production (GG5)* *Development of sustainable infrastructure for: transportation, energy, irrigation and urban works (GG9)*	*development sectors to implement NDC (PIPA9)* *Implement National Target Program on Agricultural Restructuring and preventing and controlling natural disasters to stabilize the people's lives (PIPA24)* *Implement other activities related to adaptation to climate change to enhance resilience, protect people's livelihood, establishing a basis for further contribution to GHG mitigation (PIPA25)*
		CCD1.7 – Forest development	*Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)*		*Implement National Target Program on Sustainable Development of Forestry. (PIPA23)*
		CCD1.8 – Fisheries & aquaculture	*Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)* *Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)*		*Implement National Target Program on Sustainable Development of Fishery (PIPA22)*
		CCD1.9 – Biodiversity & conservation	*Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)*	*Economic and efficient utilization of natural resources (GG7)*	
		CCD2.1 – Public health & social service	*Community capacity development to respond to climate change – community capacity and livelihoods, public health and knowledge exchange (CC7)*		
	CCD2 Resilient society	*CCD2.2 – Residential and city area resilience*	*Food and water security (CC2)* *Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)* *Community capacity development to respond to climate change (CC7)*	*Development of sustainable infrastructure for: transportation, energy, irrigation and urban works (GG9)* *Sustainable Urbanization – planning, infrastructure and green urban areas (GG11)*	*Implement National Target Program to Respond to Climate Change and Green Growth (PIPA21)*
		CCD2.3 - Transport	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural*	*Improving energy productivity energy use efficiency, reduce energy*	

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
			and solid waste management (CC5)	*waste in production activities, transportation and trade (GG2)* *Changing the fuel structure in manufacturing and transportation* *(GG3)*	
		CCD2.4 – Waste management and treatment	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Promoting sustainable consumption and building green lifestyles (GG13)*	
		CCD2.5 – Disaster – specific infrastructure	*Proactive disaster preparedness and climate monitoring – early warning, DRR (CC1)*		
		CCD2.6 – Strengthening disaster risk reduction	*Proactive disaster preparedness and climate monitoring – early warning, DRR (CC1)*		
	CCD3 – Enterprise and production	*CCD3.1 – Energy generation*	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Improving energy productivity energy use efficiency, reduce energy waste in production activities, transportation and trade (GG2)* *Promote effective exploitation and increase the proportion of new and renewable energy sources in the nation's energy production and consumption (GG4).* *Development of sustainable infrastructure for: transportation, energy, irrigation and urban works (GG9)*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)*
		CCD3.2 – Energy efficiency	*Greenhouse gas emission reduction to protect global climate system – RE systems, energy saving, agricultural and solid waste management (CC5)*	*Improving energy productivity energy use efficiency, reduce energy waste in production activities, transportation and trade (GG2)* *Promote effective exploitation and*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)* *Implementation of GHG mitigation activities in*

Pillar	Category	Task	NCCS strategic actions	VGGS solutions	PIPA tasks 2016-2020
				increase the proportion of new and renewable energy sources in the nation's energy production and consumption (GG4) *Promoting sustainable consumption and building green lifestyles (GG13)*	*transportation sector to implement NDC (PIPA7)* *Implementation of other Nationally Appropriate Mitigation Actions (PIPA10)*
		CCD3.3 – Infrastructure and construction	*Food and water security (CC2)* *Suitable proactive response actions to sea-level rise in vulnerable areas (CC3)*	*Development of sustainable infrastructure for: transportation, energy, irrigation and urban works (GG9)*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)*
		CCD3.4 – Industry & trade	*Greenhouse gas emission reduction to protect global climate system (CC5)*	*Improving energy productivity energy use efficiency, reduce energy waste in production activities, transportation and trade (GG2)* *Promote fast development of green economic sectors to create jobs, increase income and enrich natural capital (GG8)*	*Develop and implement proposals for GHG emission mitigation and GG appropriate to national conditions (NAMA) in the transportation, industrial, construction, agricultural and rural development sectors (PIPA5)* *Implementation of GHG mitigation activities in industrial and trade sectors to implement NDC (PIPA6)*
		CCD3.5 – Tourism	*Protection and sustainable development of forest, increasing carbon removals and biodiversity conservation (CC4)*		

5.2.1 Ministry allocation to climate change policies

5.2.1.1 National Climate Change Strategy

The combined allocation of climate change budget (2016 – 2020) by the six studied ministries to each of the strategic actions (see Table 5.1 and Table 1.3) of the NCCS was calculated (Figure 5.1). The ministry budget which could be allocated to NCCS was on average 7,675 billion VND per annum (2016 – 2020). This NCCS budget represented 77% of the total ministry climate-related budget. The difference of 23% of the budget was caused by removal of adaptation-based transport investment under typology task CCD2.3 which did not link to NCCS due to a methodological limitation. Task CCD2.3 was the second largest expenditure task in ministries, but this budget was mainly road and bridge construction with adaptation benefits that had not been included as a NCCS strategic action (Table 5.1).

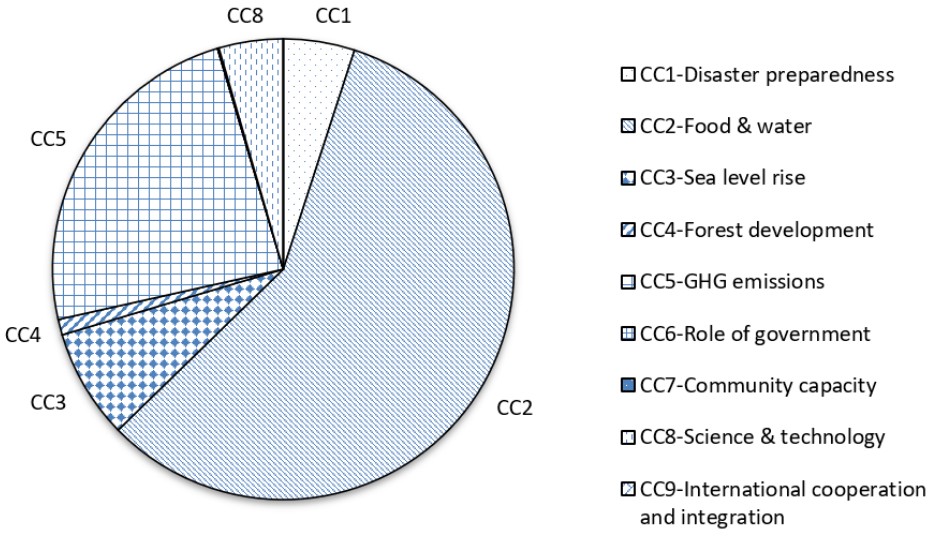


Figure 5.1** - **The combined allocation of six studied ministries to the NCCS strategic actions 2016-2020.

The mean annual mean budget under NCCS was 11,781 billion VND.

The NCCS budget was dominated by a strategic action on food and water (CC2; see Table 1.3 for further description), representing 58% of the NCCS budget. CC2 was mainly related to an allocation for irrigation (CCD1.3 in the typology) which was the largest ministry expenditure task. The second largest NCCS strategic action was CC5 on GHG emissions (24% NCCS budget). This is in line with the proportion of pure mitigation, and maybe some mixed adaptation and mitigation projects, recorded in the combined ministry data (Figure 4.2), and allowing for a proportional increase due to reduction of NCCS as described above. The remaining 18% of the NCCS budget was dispersed across the remaining strategic actions. The strategic actions which received <2% allocation were sea level rise (CC3, 7.7%), disaster preparedness (CC1, 5.0%) and science and technology (CC8, 4.5%).

5.2.1.2 Viet Nam Green Growth Strategy

The allocation to VGGS solutions (see Table 5.1 and Table 1.7) by the 6 ministries was also assessed using data from 2016 – 2020 (Figure 5.2). The overall allocation to VGGS represented 64% (or 6,469 billion VND per annum) of the total climate change related budget for the 6 ministries. The difference of 36% of the budget was due to the removal of adaptation-based transport (under CCD2.3), and some typology-tasks did not code into the VGGS (see Table 5.1). No (climate change) budget was identified for 6 of the 17 VGGS solutions (see Table 1.7): GG6 master plans, GG7 natural resources utilization, GG8 green sector jobs and income, GG11 sustainable urbanization, GG14 mobilise resources and GG17 international cooperation. Imperfect cross-coding between the typology and VGGS may be part of the reason for these zero budgets; this also influenced other aspects of the analysis as described in section 2.3 and below.

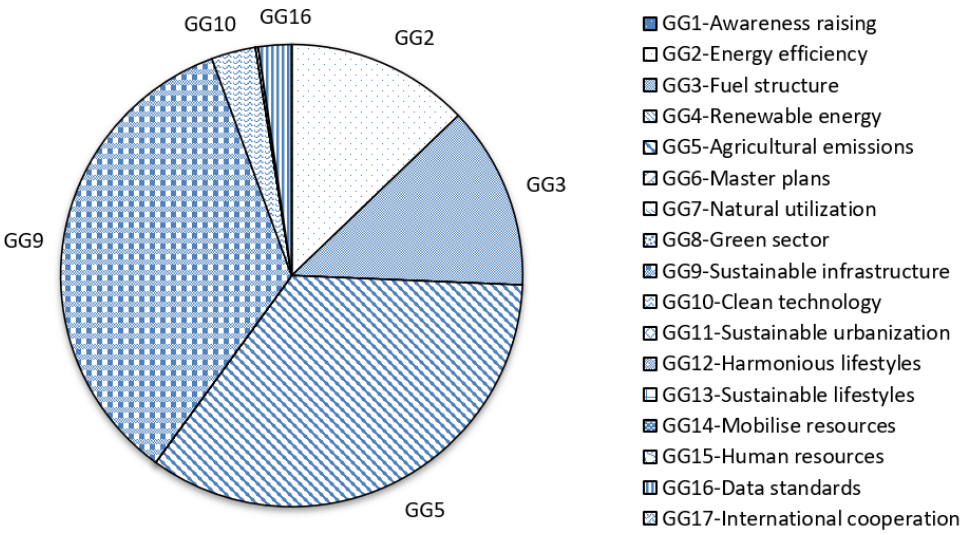


Figure 5.2 - The combined allocation of climate change delivery budget by six studied ministries to the VGGS solutions (2016 – 2020).

The annual mean VGGS budget was 6,469 billion VND). The legend identifies 17 solutions, but for clarity only solutions allocated > 1% budget are labelled on the pie chart (and GG6 – 8, 11, 14 and 17 have zero allocation).

The largest and equal contribution of 34% of VGGS budget was from control of agricultural emissions (GG5) and sustainable infrastructure (GG9). This identical budget from GG5 and GG9 is because identical tasks are feeding into GG5 and GG9 which were split equally as per the methodology. The tasks feeding in were CCD1.3 (irrigation, ~92% of budget) and CCD1.6 (rural development). The inability of the methodology to accurately divide the task between the GG5 and GG9 solutions represents one challenge of linking intervention based typology (the tasks of TCCRE) with policy. Notwithstanding these issues, careful interpretation of the results does show that agricultural development, especially the water sector, represent the majority (68%) of the VGGS budget.

Similarly, the GG2 and GG3 solutions have the next largest budget, again formed by equal splitting of the CCD2.3 budget (though GG2 has other tasks feeding into it, but they have zero budget). There is imperfect interoperability between tasks and VGGS solutions, with CCD2.3 being mitigation benefits through transport (mainly road building) which transfer into energy efficiency (GG2) and fuel structure (GG3). This interoperability between tasks and policy solutions is more significant for VGGS compared to NCCS and thus requires careful interpretation of results.

5.2.1.3 Plan for Implementation of the Paris Agreement

The allocation to PIPA by the 6 ministries was also assessed using data from 2016 – 2020 (Figure 5.3). The total climate change relate budget which could be translated to PIPA "tasks" (see Table 5.1 and Table 1.11) averaged 5,025 billion VND per year from 2016 – 2020; which represents 50% of the total climate change budget. The difference of half of the budget in the cross-coding process was due to the removal of adaptation based transport of typology-task CCD2.3, but also the lack of PIPA tasks that typology-tasks could be coded into. Over 90% of the budget was targeted at PIPA 21 (Implement National Target Program to Respond to Climate Change and Green Growth). Over 90% of the budget of PIPA 21 was from methodology task CCD1.3 (irrigation). A majority of the remaining PIPA budget,

beyond PIPA 21, was from other elements of the NTP (PIPA 23 – 25, for fisheries, forestry and disasters, respectively). The NTP related PIPA tasks (PIPA 21 – 24) make up over 99% of the total PIPA budget.

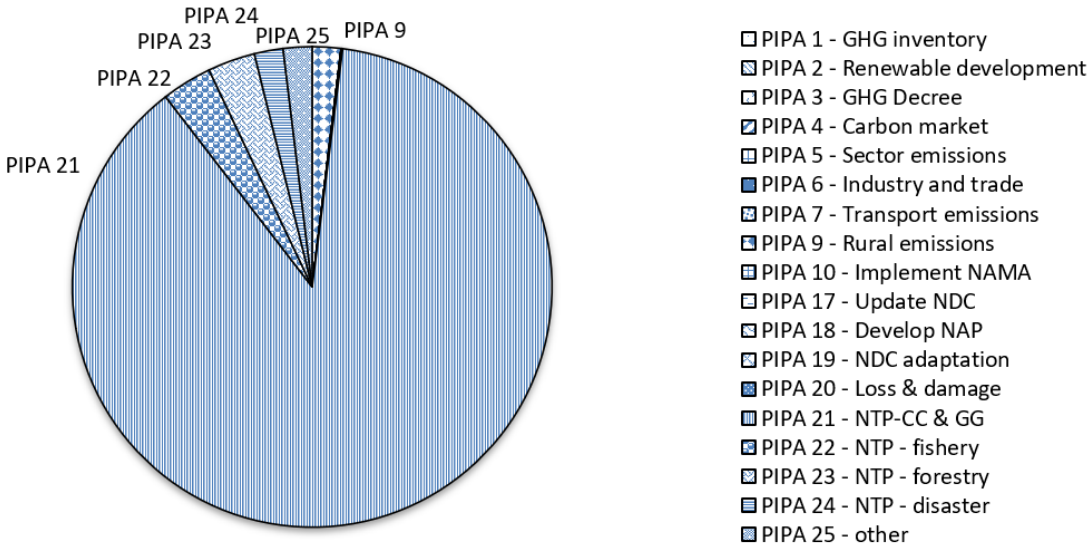


Figure 5.3 - The combined allocation of climate change delivery budget by six studied ministries to the PIPA tasks (2016 – 2020).

Annual mean PIPA budget of 5,025 VND billion. All tasks are identified in the legend, but for clarity only tasks allocated > 1% budget are labelled on the pie chart.

5.2.1.4 Ministry roles in climate change budgets

The previous analysis has combined the data from all the of the studied ministries to provide an overall picture. This section separates the contribution of each ministry to identify the institutional role that each play within the climate change related budget.

The allocation is uneven across the NCCS strategic actions and across the 6 ministries; this would be consistent with the differing mandates of the ministries. The strategic actions CC2 (food and water) and CC5 (GHG emissions) dominate the climate change related budget (Figure 5.4). Over 98% of allocation to CC2 (food and water) is from MARD. Whereas MOT dominates the budget of CC5 (GHG emissions). It is the scale of the climate budgets of MARD and MOT, and the focus on particular strategic actions (CC2 and CC5) that define the overall shape of the ministry climate expenditures. However, it is also worth noting that small budget allocation from ministries across a number of different NCCS strategic actions can be found. For example, in CC5 there are small allocations from MOIT, MARD, MOC and MOST, in addition to the large allocation from MOT.

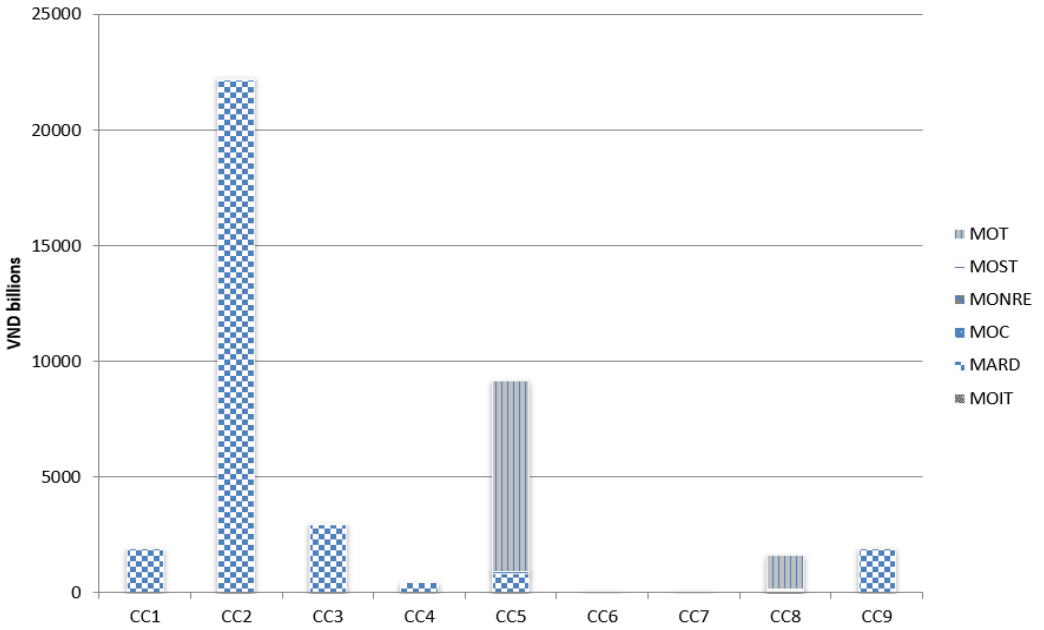


Figure 5.4 - The allocation of climate relate budget to each of the NCCS strategic actions divided into contribution from each ministry.

For PIPA, further dominance of MARD is apparent, with most of the budget aligned to PIPA 21 (Figure 5.5). Compared to NCCS above, where MOT has notable allocation to certain objectives, for PIPA MOT has a zero budget.

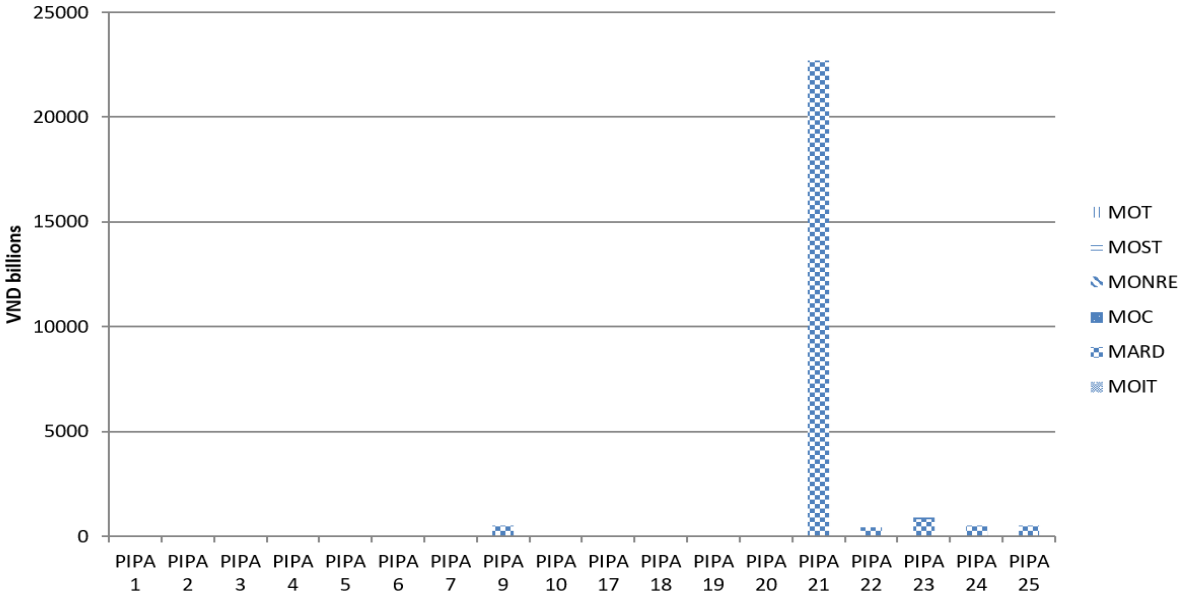


Figure 5.5 - The allocation of climate relate budget to each of the NCCS strategic actions divided into contribution from each ministry.

5.2.2 Provincial allocation to climate change policies

5.2.2.1 National Climate Change Strategy

The climate change relate budgets of 29 provinces were linked to the NCCS strategic actions using the investment budget data from 2016 – 2020. Just over 90% of the total climate investment budget could be tracked into NCCS strategic actions, averaging 14,396 billion VND per year (this was due to loss of adaptation based investments under CCD2.3). Most of the allocation was to CC2 (food and water) and CC3 (sea level rise, 33%) (Figure 5.6). CC2 is the largest strategic action, and accounts for 39% of the budget, whereas CC3 accounts for 33%. The remaining budget is divided fairly equally between four further strategic actions: forestry, GHG emissions, community capacity and disaster preparedness (see also Table 5.1 and Table 1.3). Budget allocation to three strategic actions was missing from the provinces and this is logically aligned to the lack of mandate in these areas for the provincial administrations: CC6 (role of government), CC8 (science and technology) and CC9 (international cooperation).

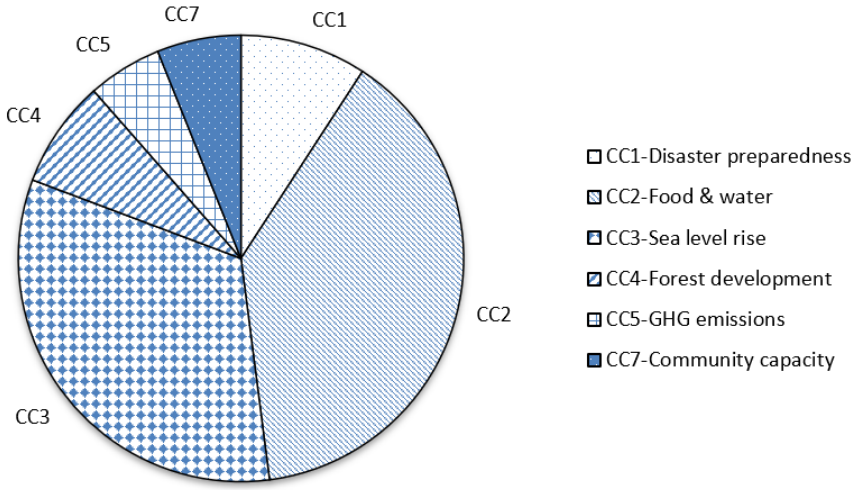


Figure 5.6 - The allocation of provincial climate change related investment budget to NCCS strategic actions (2016 – 2020).

The mean annual NCCS budget was 26,219 billion VND.

5.2.2.2 Viet Nam Green Growth Strategy

The climate investment budget which could be tracked onto VGGS was relatively small; just 45%, or 7,312 billion VND per year. This reflects taking out of the adaptation based tasks of CCD2.3 and incomplete tracking between the climate change tasks of the typology and VGGS solutions, as described in section 5.2.1. For the VGGS, provinces targeted budgets at nine of the 17 VGGS solutions (Figure 5.7; see also Table 5.1 and Table 1.7). The solutions with the highest expenditure is GG9 (sustainable infrastructure; 45%), but other categories also receive significant allocations, including GG5 (agricultural emissions, 24%), GG11 (sustainable urbanisation, 17%) and GG13 (sustainable lifestyles, 12%). The nine VGGS solutions covered by the provincial VGGS budget are all concrete and practical, the solutions which no climate change relevant expenditure (as per the typology) are more preparatory or supportive in nature, and include awareness raising (GG1), master planning (GG6), clean technology (GG10), data standards (GG16) and international cooperation (GG17) (see Table 5.1).

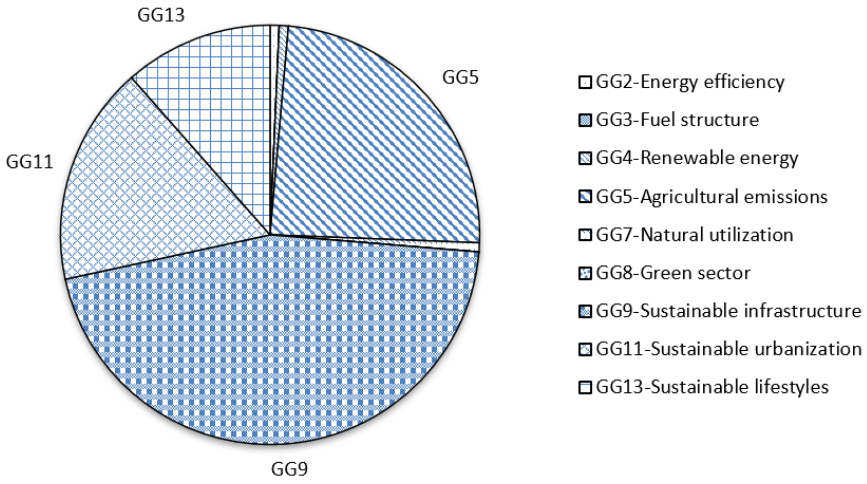


Figure 5.7 - The allocation of provincial climate change investment budget to provincial to VGGS solutions (2016 – 2020).

The mean annual VGGS budget was 19,539 billion VND.

5.2.2.3 Plan for Implementation of the Paris Agreement

The climate change relate budgets of 29 provinces were linked to PIPA "tasks" (Figure 5.8; see also Table 5.1 and Table 1.11). A total of 72% of the climate investment budget was included in the provincial PIPA budget. The largest allocation of 70% was to PIPA 21 (Implement National Target Program to Respond to Climate Change and Green Growth); this is similar to ministries in which it was over 90%. The largest remaining allocations were to other NTPs (PIPA 23 5%, and PIPA 24 4%, and PIPA 22 3%), and to PIPA 25 (other category). Over 88% of the budget was NTP-related PIPA actions (the comparative figure for ministries is 99%) showing the dominance of NTP-related activities as part of the PIPA budget.

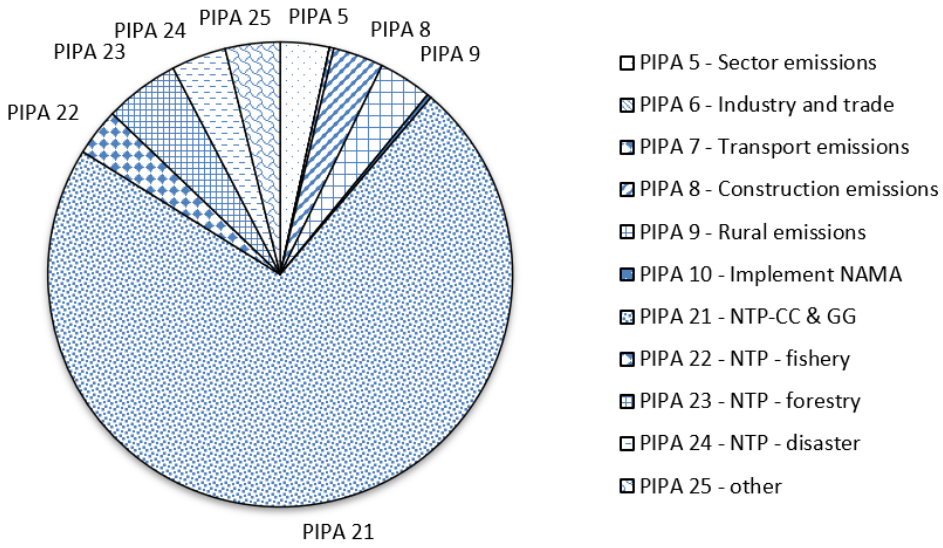


Figure 5.8 - The allocation of provincial climate change investment budget to PIPA tasks (2016 – 2020).

The mean annual PIPA budget was 19,539 billion VND.

5.3 Links between provincial budgets and climate change and green growth plans

The previous section has identified allocation of budget across a range of strategic actions of the NCCS and VGGS solutions for provinces. However, consideration can also be made of linkages between budgets and provincial-level climate related policies. Due to differences in provincial policies across the 29 provinces, it is not possible to do a consolidated budget analysis as outlined for ministries in relation to the common national policies of NCCS and VGGS. However, a more contextual analysis can be carried out to elucidate climate change related budget and provincial policy alignment.

In this section, there are seven case examples which analyse the links between provincial budgets and climate change and green growth policies. These cases show examples of apparent imperfect alignment between provincial plans and budget allocation in some areas. The main spending categories over the period 2010-2020 (three provinces that were also included in the CPEIR of 2015) or 2016-2020 (four other provinces) are summarized; the relative share of ODA in expenditure is given; and the division between adaptation and mitigation expenditure. These were compared with the climate change and green growth action plans and other policies available for each of those provinces, in addition to the national level strategies and plans with tasks allocated to provinces.

In six of the seven cases about 1/3 or more of climate change budget was sourced from ODA, and only in Bắc Ninh province was this significantly less (at 6.4%). The mean annual totals of climate change expenditure were of a similar order of magnitude at between 537 billion and 883 billion VND per year for six of the provinces; Hòa Bình province was an outlier with a lesser 416 VND per year. These are significant amounts of expenditure, which are consistent with the ambitions of provincial action plans that include numerous climate change responses and green growth measures in each province.

The climate change budgets are almost entirely spent on infrastructure, whereas “soft” expenditure on capacity building, research, awareness raising, or policy formulation were very minor parts of the totals. It cannot be concluded that there was insufficient budget allocation to such soft measures as the local action plans do not provide detailed budgets or strict climate-related spending priorities. However, in light of the findings, provinces could re-assess the relative importance of soft measures and their climate change spending priorities in future years.

The cases all show that the largest share of climate change expenditure were climate change adaptation investments, in some years even 100%; a very minor part was public expenditure on GHG emissions mitigation (in some years 0%); and a small part towards activities with both adaptation and mitigation benefits. This is broadly consistent with national policies (including the INDC and PIPA) and provincial action plans, that hold that adaptation would be prioritized for public expenditure and mitigation actions are primarily expected through private sector investments.

All provinces include actions on GHG emissions mitigation actions, in particular in the local GGAPs, related to energy production and consumption, waste treatment, and forestry. Public expenditure on this was very modest with some exceptions regarding forestry, which is usually classified as expenditure with both adaptation and mitigation benefits. Low expenditure on GHG emission mitigation may be because of expectations of private sector investment in energy efficiency and renewable energy, also waste treatment. However, some public expenditure would still be expected, on e.g. capacity building and regulation, that would enable and encourage private sector investment in for example energy efficiency and renewable energy. Nevertheless, the majority of expenditures (categories) are consistent with the local action plans. But because the measures are not clearly

prioritized and budgeted, the positive policy-budget links cannot be further quantified without a detailed project-by-project investigation.

There is however some misalignment between local action plans and actual climate change investment, for example in transport (roads, waterways). This is a priority in some national level policies, with a focus on mitigation actions such as transport mode switching to reduce fuel consumption, but it is hardly included in local action plans as mitigation or as adaptation action. However, actions such as dredging of canals or road improvement may be an adaption action if they ensure drainage or flood proofing, and this was found in several provinces as an expenditure. This misalignment could indicate a weakness in local plan formulation or it could also be an artefact of the CPEIR methodology, which leads to transport management to be classified as climate change measure even though not prioritised in policies.

Some (funded) measures are ranked as climate change but they are in fact only partly related. For example, riverbank erosion is seen as "climate change" in policy as well as expenditure categorisation but the main causes can often be encroachment by homes, businesses and roads; destruction of natural vegetation; sandmining of the riverbed; and reduced sediment content of river water as a result of upstream dam building. Climate change affects the river flow and causes sea level rise, but these are minor contributing factors to riverbank erosion. Another example is urban inundation measures that are seen as climate change responses and investments, but the main causes may be under-investment in urban rainwater storage and drainage of new urban areas and land subsidence, which both make cities more vulnerable to inundation and (tidal, river) floods independent of climate change or sea level rise. A third example is waste and wastewater drainage and treatment, which are sometimes presented as mitigation measures in policy and expenditure categorisation. Solid waste treatment has potentially important mitigation effects, but this is not necessarily the case for hospital and other hazardous waste or wastewater drainage and treatment. These examples suggest the need for improved methodological guidance on interpretation of what is climate-related expenditure.

Forestry expenditure is very small (0.4%) whereas it is quite prominent in localised policies, and on agriculture there is no expenditure, suggesting that stated priorities are not funded. On the other hand, fisheries & aquaculture features significantly, and that is consistent with the GGAP.

Box 5.1 - Bắc Ninh province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2010 to 2020 was about VND538b. Total climate change spending over the period included 6.4% ODA.
- In the period 2010-2020 climate change spending on adaptation was 97.6%, mitigation was 0.3%, and 2.1% on both adaptation and mitigation.
- Adaptation projects included irrigation, river dikes, transport, clean water supply
- Mitigation projects included wastewater treatment and forestry.
- Of the mean annual expenditure of VND **538b** (2010-2020), the following categories together make up 94%:

CCD 1.3 Irrigation: VND **187.8b**/year; CCD 1.4 Dyke and riverbank protection: VND **160.1b**/year; CCD 2.3 Transport: VND **103.3b**/year; CCD 1.5 Water quality and supply VND **49.9b**/year; CCD 2.2 Residential and city area resilience: VND **28.6b**/year; CCD 2.4 Waste management and treatment: VND **23.1b**/year; CCD 1.7 Forest development: VND **4.6 b/year**.

Policy – expenditure links (see also policy summaries in Chapter 1):

- Expenditures on irrigation and dyke and riverbank protection, the two main expenditure categories, feature in national policies but less in the Bắc Ninh plans. The NTP-RCC report over the period to 2015 does not include this; the provincial CCAP of 2019 (for the period until 2030), focuses on planning, monitoring and capacity building, with investment in construction possibly following such planning. The local GGAP (2017-2020) focuses on mitigation and urban matters. The local PIPA (2017-2020) includes references to water resource management and river dyke upgrades so there is a link between climate change policy priorities and budgets, but local plans do not express well the actual climate-related spending priorities.
- National policies and the local GGAP do mention transport, but scarcely and only among many other issues. This does not appear to justify the substantial transport expenditure and could indicate a weaknesses in local plan formulation. This could also be an artefact of the methodology, which leads e.g. to road improvements to be classified as adaptation measures even though that is not a key element in national or local policies.
- Water quality and supply, urban resilience and waste treatment do have clear roles in the national and localized plans. Forestry is key in climate change and green growth action according to national policies and it also features in the localised plans but expenditure is the smallest amongst those topics. This shows reasonable links between these policy priorities and expenditure, but policies are not budgeted strictly, so positive link cannot be quantified.
- Some measures are undoubtedly important but are ranked as climate change whereas they are only partly related to climate change. For example, urban flooding, dyke erosion are seen as “climate change” and are indeed worsened by e.g. higher rainfall intensities because of climate change. But the changes have other causes, such as rapid urban expansion with limited investment in urban rainwater storage and drainage, making them more vulnerable to inundation / floods. This suggests the need for better guidance in the methodology on interpretation of what is climate-related expenditure and how much.

Box 5.2 - Hòa Bình province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2016 to 2020 was VND416b. Total climate change spending over the period included 14% ODA.
- Climate change spending on adaptation varied from 9 - 16% from 2016 - 2020. Mitigation spending was negligible, and the remainder was both adaptation and adaptation / mitigation.
- Adaptation projects included projects on irrigation, transport, agriculture, rural development and food security.
- Mitigation and adaptation projects included forest protection and development.
- Of the mean annual expenditure of VND **294b** (2016-2020), the following categories together make up 49%: CCD 2.6 Strengthening disaster risk reduction: **100.8b**/year: CCD 1.3 Irrigation: VND **84.7b**/year; and CCD 1.7 Forest development: VND **83.0 b**/year.

Policy – expenditure links (see also policy summaries in Chapter 1):

- Several key expenditures feature in both national policies and the provincial equivalents (provincial NTP-RCC to 2015; CCAP but for the period from 2020; PIPA), such as irrigation, disaster risk reduction, and dyke and riverbank protection. Rural development and food security, and urban resilience are not explicit in the localized policies other than indirectly though the PIPA which refers to national programmes, but expenditures are modest. This shows reasonable links with climate change and/or green growth policy priorities but these policies are not budgeted strictly, so positive links cannot be quantified.
- Forestry, the third highest expenditure category, also features in national and provincial policies. However, this is not more prominent than in other provinces whereas expenditure in Hòa Bình is much higher. This may be because of active participation in the national REDD+ programme.
- Transport expenditure is the second highest category but is not mentioned in the local climate change plans, although there were some achievements in the period to 2015. There is no mention of road improvements (adaptation), transport mode switching or (fuel) efficiency improvements. This mismatch is possibly because of the budget labelling methodology and its interpretation; it could also suggest a weakness in local policy for the period 2016-2020.
- The local policies until 2015 and from 2020 mention several energy related GHG emissions reduction actions and also waste treatment, implying that it will also have been a local priority in the period 2016-2019. Public expenditure on this in the period 2016-2020 was very modest, which may be because of expectations of private sector investment in energy efficiency and renewable energy.

Box 5.3 - Hà Tĩnh province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2016 to 2020 was about VND843b. Total climate change spending over the period included 38% ODA.
- In the period 2016-2020 climate change spending on adaptation was 95%, and most of the remainder was both adaptation and mitigation.
- Adaptation projects included coastal and dyke protection, irrigation and urban developments.
- Mitigation (and adaptation) projects included agriculture and forestry projects (including REDD+), a plant to compost domestic waste into organic fertilizer, and a rural electricity project.
- Of the mean annual expenditure of VND **843b** (2016-2020), the following categories together make up 95%: CCD 1.1 Coastal protection and coastal dykes: VND **178.5b**/year; CCD 1.3 Irrigation: VND **131.3b**/year; CCD 2.2 Residential and city area resilience: VND **100.9b**/year; CCD 2.5 Disaster-specific infrastructure: VND **97.1b**/year; CCD 2.3 Transport: VND **66.1b**/year; CCD 1.4 Dyke and riverbank protection: VND **54.5b**/year; CCD 1.5 Water quality and supply VND **49.7b**/year; CCD 1.6 Rural development and food security: VND **47.7b**/year; CCD 2.6 Strengthening disaster risk reduction: VND **29.3b**/year; CCD 3.3 Infrastructure and construction: VND **29.3b**/year; CCD 1.7 Forest development: VND **23.2 b**/year.

Policy – expenditure links (see also policy summaries in Chapter 1):

- Several key expenditures feature in both national policies and the provincial equivalents (provincial NTP-RCC, CCAP, GGAP, PIPA), such as coastal protection, irrigation, disaster-specific infrastructure and dyke and riverbank protection. This shows a link with climate change and/or green growth policy priorities but these policies are not budgeted strictly, so positive links cannot be quantified.
- Actions on residential and city development (the third largest expenditure) may indeed be important, as Hà Tĩnh benefited from ODA on urban drainage and flood management in the context of climate change.
- Transport is the fifth largest with 8% of total climate change expenditure/year and giving the impression that this is about road improvement, an adaption action. This priority might be implied by the national level policies, but these focus on mitigation actions. The local GGAP also gives transport GHG emission mitigation actions, but transport is not mentioned as climate change adaptation priority in the localized policies.
- Other mitigation actions also do not feature in public expenditure, likely because many energy related actions listed in the provincial GGAP are to enable private investment.
- Forestry expenditure is small at about 3% and agriculture does not feature in the list of main expenditures. The localized policies list many actions on these, giving the impression that these are top priorities on both adaptation and mitigation, but expenditure does not reflect that.

Box 5.4 - Quang Nam province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2010 to 2020 was about VND883b. Total climate change spending over the period included 35% ODA.
- In the period 2010-2020 climate change spending on adaptation was 91%, mitigation was 3%, and 6% on both adaptation and mitigation. In the period 2016-2020 100% was on adaptation.
- Adaptation projects included urban development and coastal erosion protection measures.
- Mitigation projects included a project on sustainable forest sector development.
- Of the mean annual expenditure of VND **883b** (2010-2020), the following categories together make up 91%:

CCD 2.3 Transport: VND **244.1b**/year; CCD 2.2 Residential and city area resilience: VND **173.2b**/year; CCD 1.3 Irrigation: VND **156.4b**/year; CCD 2.4 Waste management and treatment: VND **79.1b**/year; CCD 1.7 Forest development: VND **61.4 b**/year; CCD 1.5 Water quality and supply VND **47.1b**/year; CCD 1.1 Coastal protection and coastal dykes: VND **38.7b**/year; CCD 1.2 Saline intrusion: VND **33.8b**/year; CCD 2.6 Strengthening disaster risk reduction: VND **19.1b**/year.

Policy – expenditure links (see also policy summaries in Chapter 1):

Transport and waste management cover 37% of all climate expenditure, but these are not top-priority in the four main national climate policies whilst the provincial CCAP does mention upgrading of transport facilities in flood prone areas. Improving urban resilience, 18% of mean annual investment, is also mentioned in national policies but not as a priority in the Quang Nam provincial CCAP. It also mentions wastewater treatment in industrial parks, but the mitigation effect of wastewater treatment is limited (solid waste treatment has larger effects). In other words, there is no mismatch between policy and expenditure but the policy justification for three of the four largest expenditure categories is weak.

Other expenditures feature in all national policies and the localized CCAP. This shows a link with climate change and/or green growth policy priorities but because the policies are not budgeted strictly, these positive links cannot be quantified. Important categories include water-related climate change adaptation measures such as irrigation, water supply, coastal erosion and saline water intrusion. Forestry is mentioned as mitigation measure but signifies a minor part of total expenditure. However, Quang Nam lists agriculture and some other priorities in the CCAP which is not clearly reflected in expenditure mapping.

Many measures are undoubtedly important but are ranked as climate change whereas they are only partly related to climate change. For example, urban flooding, saline water intrusion and coastal erosion (all affecting e.g. Hoi An and surroundings) are counted as “climate change” and are indeed worsened by sea level rise and by typhoons with storm surges and high waves that are getting stronger because of climate change. But there are also other causes. The fact that Hoi An city is located in the lower section of the Vu Gia – Thu Bon river basin, together with the impact of tidal regime/coastal currents and the urbanization process has impeded the water outflows in the area, resulting to higher frequency of flooding in the area.

Box 5.5 - An Giang province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2010 to 2020 was about VND640b. Total climate change spending over the period included 37% ODA.
- In the period 2010-2015 virtually all climate change spending was on adaptation. In the period 2016-2020 adaptation was 79%, mitigation was 5%, and 16% on both adaptation and mitigation.
- Adaptation projects included irrigation, riverbank erosion, and flood protection measures.
- Mitigation projects in the period 2016-2020 included a domestic waste incinerator and rural electricity supply. The adaptation and mitigation projects include drainage and wastewater treatment systems and a project on sustainable forest protection and development.
- Of the mean annual expenditure of VND **640b** (2010-2020), the following categories together make up 96%:

CCD 2.3 Transport: VND **235.4b**/year; CCD 2.4 Waste management and treatment: VND **120.9b**/year; CCD 1.4 Dyke and riverbank protection: VND **100.8b**/year; CCD 1.6 Rural development and food security: VND **78.8b**/year; CCD 1.3 Irrigation: VND **75.6b**/year.

;

Policy – expenditure links (see also policy summaries in Chapter 1):

Transport and waste management cover more than half of all climate expenditure, but these hardly feature in the four main climate policies in the An Giang, certainly not as priorities:

- The NTP report to 2015 does not mention these two sectors at all.
- The provincial CCAP 2017-2020 does not mention waste but refers to the construction sector plan on climate change. It includes canal dredging which may explain some climate expenditure. Border road DT957 with a flood management function is a key project but is not in this policy.
- The provincial GGAP 2017-2020 does not address transport or waste but includes wastewater.
- PIPA in An Giang (2018-2020) refers to construction and transport sector plans but does not explain climate adaptation or mitigation aspects of those.

This mismatch between policy and expenditure may be a feature of the methodology in which “climate related” expenditure is open to interpretation. It is unclear which part of the expenditure on border road DT957 is climate change relevant; whether canal dredging is enabling adaptation or not; or whether wastewater management has any impact on GHG emission reduction.

Other expenditures feature in some or all key policies and show a link with climate change and/or green growth policy priorities. As the policies are not budgeted strictly, these positive links cannot be quantified. Important categories include water-related climate change adaptation measures on irrigation, riverbank erosion and flood control. Energy efficiency and energy generation signify a minor part of expenditure.

Many measures are undoubtedly important but are ranked as climate change whereas they are only marginally related to climate change. For example, riverbank erosion is counted as “climate change”, but it is caused by encroachment, destruction of natural vegetation, sandmining of the riverbed, reduced sediment content of river water as a result of upstream dam building. Climate change also affects the river flow and causes sea level rise, but these are minor contributing factors to riverbank erosion in An Giang.

Box 5.6 - Sóc Trăng province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2016 to 2020 was about VND660b. Total climate change spending over the period included 30% ODA.
- In the period 2016-2020 climate change spending on adaptation was 81%, mitigation spending was very small and the remainder was both adaptation and mitigation.
- Adaptation projects included salinity intrusion control, rural development and coastal protection.
- Mitigation focused on hospital and industrial waste treatment.
- Mitigation and adaptation projects included planting, restoration of mangrove forest.
- Of the mean annual expenditure of VND **660b** (2016-2020), the following categories together make up almost 100%: CCD 1.2 Saline intrusion: VND **221.5b**/year; CCD 2.4 Waste management and treatment: VND **94.3b**/year; CCD 1.6 Rural development and food security: VND **85.6b**/year; CCD 1.1 Coastal protection and coastal dykes: VND **83.6b**/year; CCD 2.3 Transport: VND **52.5b**/year; CCD 1.8 Fisheries & aquaculture: VND **45b**/year; CCD 2.2 City resilience: VND **35b**/year; CCD 1.3 Irrigation: VND **18b**/year; CCD 2.5 Disaster-specific infrastructure: VND **12b**/year; CCD 1.4 Dyke and riverbank protection: VND **8.2b**/year; CCD 1.7 Forest development: VND **2.9b**/year.

Policy – expenditure links (see also policy summaries in Chapter 1):

- Several key expenditures feature in both national policies and the provincial equivalents (provincial NTP-RCC, CCAP, GGAP, PIPA), such as saline intrusion, waste treatment and coastal protection and coastal dykes, rural development and urban resilience. This shows a link with climate change and/or green growth policy priorities but these policies are not budgeted strictly, so positive links cannot be quantified.
- Transport expenditure is significant and is possibly counted as both adaptation & mitigation. The local GGAP mentions roads and waterways but does not explain that roads may be about adaptation and waterway efficiency can increase efficiencies and reduce emissions.
- Waste treatment is a GHG emissions mitigation action and is mentioned in the local GGAP. However, this is partly about hospital and other hazardous waste that must be incinerated and may produce GHG emissions instead of reduce emissions. This is an interpretation question and any mismatch may be due to lack of clarity in the guidelines.
- Forestry expenditure is very small (0.4%) whereas it is quite prominent in localised policies, and on agriculture there is no expenditure, suggesting that stated priorities are not funded. On the other hand, fisheries & aquaculture features significantly, and that is consistent with the GGAP.
- Several of the provincial plans include statements about energy-related GHG emissions reduction actions but there is no public expenditure. This is presumably because of expectations of private sector investment but that could still be enabled with some public funding.

Box 5.7 - Cà Mau province policy and expenditure

Highlights of expenditure analysis (see folio in Annex 2):

- The average annual climate budget expenditure for the period 2016 to 2020 was about VND537b. Total climate change spending over the period included 27% ODA.
- In the period 2016-2020 climate change spending on adaptation was 82%, mitigation spending was negligible, and the remainder was both adaptation and mitigation.
- Adaptation projects included coastal protection and dyke, transport, residential areas, irrigation, urban resilience and riverbank protection.
- Mitigation and adaptation projects were on mangrove protection, restoration and development.
- Of the mean annual expenditure of VND **537b** (2016-2020), the following categories together make up 94%:

CCD 1.1 Coastal protection and coastal dykes: VND **234b**/year; CCD 2.3 Transport: VND **49.7b**/year; CCD 2.2 Residential and city area resilience: VND **45.6b**/year; CCD 1.3 Irrigation: VND **45b**/year; CCD 1.4 Dyke and riverbank protection: VND **41.7b**/year; CCD 2.5 Disaster-specific infrastructure: VND **39b**/year; CCD 1.7 Forest development: VND **29.5 b**/year; CCD 1.5 Water quality and supply VND **19.2b**/year.

Policy – expenditure links (see also policy summaries in Chapter 1):

- Several key expenditures feature in both national policies and the provincial equivalents (provincial NTP-RCC, CCAP, GGAP, PIPA), such as urban resilience and forest development. This shows a link with climate change and/or green growth policy priorities but these policies are not budgeted strictly, so positive links cannot be quantified.
- Forestry expenditure is however small (5%) whereas Ca Mau has the largest forested area of the Mekong Delta, and agriculture is not among the main expenditures. The provincial policies do list many actions on these, suggesting that such top priorities are not reflected in expenditure.
- The national policies justify coastal protection, irrigation, riverbank protection and natural disaster management as primary climate change investments. However, the provincial CCAP, GGAP, PIPA, or the reported achievements of the NTP-RCC (in the period to 2015) do not mention these, whereas expenditures show that they actually were priorities. This indicates weaknesses in provincial climate change & green growth action plan formulation.
- Transport expenditure is the second highest category and is focused on adaptation. The local GGAP mentions increased capacity of waterway transport, but that is primarily a mitigation action because it would reduce transport fuel use per unit of good transported. There is no mention of road improvements (adaptation) or transport (fuel) efficiency improvements in local plans. This mismatch is possibly because of the budget labelling methodology and its interpretation.
- The local GGAP mentions many energy related GHG emissions reduction actions and also waste management, but this is not evident from public expenditure mapping. This is presumably because of expectations of private sector investment in energy efficiency and renewable energy, but just to enable that could have been supported with some public expenditure.

5.4 Conclusions

A. Two of the six studied ministries dominated the climate change budget, MARD and MOT. Each of these ministries targeted one strategic action of the NCCS which together represented 86% of the overall climate change related budget: MARD focusing on food and water (CC2) and MOT on reducing GHG emissions (CC5).

B. Beyond these main expenditures there appears to be diverse portfolio of smaller expenditures into many areas of the NCCS and VGGS in most of the ministries. This suggests that many ministries are aware and active in the broad range of NCCS strategic actions and VGGS solutions, and have expenditures related to them.

C. PIPA budgets in both provinces (88%) and ministries (99%) were dominated by NTP-related actions, especially PIPA task No. 21 for climate change and green growth, but also NTP actions for fisheries, disaster and forestry.

D. The climate budget of NCCS was greater than the climate budget for GGS and PIPA, in both ministries and provinces. This correctly reflects the broad array of the overall climate response reflected in the NCCS, in comparison with GGS in which some policy objectives are "green" but not climate-related, and PIPA which is focussed on climate change mitigation and thus excludes the majority of climate finance flowing into adaptation.

E. The linkage between VGGS and the CPEIR typology tasks created some methodological challenges. Comparatively small amounts of climate investment budget could be tracked onto VGGS solutions: 64% of the ministry investment budget for ministries, and 45% of provinces. A review of the linkages between the CPEIR typology and the various national policy instruments would be an imperative prior to any further climate finance analysis using the typology applied in this study.

F. Within the national climate policy space, provinces are highly focused on concrete and practical climate related interventions, rather than e.g. technological aspects provided by central ministries. Activities such as food and water, sea level rise, forest development and GHG emissions make up a majority of spending under the NCCS. These activities are mainly infrastructure related and do not pick up on provincial level "soft" aspects such as awareness raising and capacity building to promote local action which are often detailed in provincial level climate related policy.

G. There are opportunities for further alignment between provincial plans and climate change budgets, for example, in relation to expenditures in road and waterway transport. However, detailed project-by-project investigation of this with the provinces is needed to fully quantify this, but it would be retrospective and is beyond the scope of this CPEIR.

6 Recommendations

6.1 Mainstreaming climate change and strengthening planning with climate change resources

Issues:

In Viet Nam's planning system, the 10-year Socio-Economic Development Strategy (SEDS) and the 5-year Socio-Economic Development plan (SEDP) provide development goals and concretize national and local priority policies in the respective timeframe. The public budget estimation and allocation is based on SEDS and SEDP priorities. However, the system has not yet become a strategic tool for budget estimation: (i) There are different strategies and plans related to climate change, which identify targets, orientation, and only some indicate budget requirements; (ii) The SEDP does not fully reflect such prioritized strategies and plans for each period and as guidelines for budget allocation.

Climate change policy at the national level is comprehensive, and also well developed at the provincial level. However, further mainstreaming of climate change into sectoral projects could expand the climate change response. In this study this has especially been the case for transport projects which have relevance to climate change but are not clearly aligned to mitigation, adaptation or both, which also created issues associated with the coding typology used in this study.

Recommendations:

In the short- to medium-term, it is recommended that the MPI issue guidelines for integrating climate change-related plans and projects in more detail into an annual consolidated action plan (e.g. annual public investment plan) of ministries and provinces/cities. Climate change is relevant to many sectors, so climate change responses must be mainstreamed in policies and plans of sectors and provinces. The integration of climate change responses into the annual consolidated action plan will serve as the basis for orienting the budget allocation, including the budget for climate change of the ministries and cities/provinces. At the same time, the MOF should provide detailed instructions for ministries, and provinces/cities to annually prioritize the allocation of recurrent expenditures for climate change tasks in the annual budget plan.

In the long-term, strategies and action plans (such as the Climate Change Action Plan or Green Growth Action Plan) should be integrated into strategic objectives of many sectors as well as the overall SEDP. The 5-year SEDP should define priorities, including those for climate change responses, in a 5-year cycle with estimated financial resources including state budget (both investment and recurrent) and direction for the state budget allocation for those priorities. Based on that, monitoring and evaluation of each sectoral plan can be integrated into a common SEDP monitoring and evaluation system, as well as monitoring the results of state budget allocation according to the set priorities.

6.2 Systematically track and report climate change budget and expenditure

Issues:

Viet Nam has made strong commitments to reduce GHG emissions and strengthen climate change adaptation, which is reflected in the updated NDC of 2020. In addition to building an MRV system to monitor GHG emissions and adaptation activities and report to the UNFCCC, Viet Nam should also monitor its climate change expenditure and inform climate change policy. Tracking and reporting climate change spending systematically, reliably, and annually will be useful.

Viet Nam has undertaken CPEIRs over the past years to provide a "snapshot" of the public investment and expenditure on climate change. However, it is not yet translated into a tool for climate budgeting. The approach for CPEIR is retrospective (looks back at what happened) and is therefore not useful for real-time decision making. The CPEIR review is mainly done by external experts, but ongoing monitoring would be more accurate if it is undertaken by the proponents in provinces and ministries.

That Viet Nam has no tracking and reporting system for climate change expenditures yet is for example because the management of the development investment budget and the recurrent expenditure budget is separated and expenditure tracking is fragmented, and a lack of coordination and linkages between central and provincial levels (each level tracks and reports its own expenditures and only synthetic data is available at central level).

While most investment is aimed at climate change adaptation, public expenditure for mitigation is mainly recurrent expenditure (through scientific and technological research projects on the development of new environmentally friendly technology, materials; development of mechanisms and policies to enable climate change response activities or capacity building for stakeholders, etc.). Therefore, if the tracking and reporting system does not integrate the tracking of both investment and recurrent expenditure, it will not fully reflect the comprehensive picture of public expenditure on climate change.

Similarly, while state budget expenditures on climate change by ministries are reflected in the central budget, decisions on climate change response expenditures at the provincial level are made by provincial/city authorities, and agencies that implement these activities are obliged to report only to the People's Council. Therefore, if the monitoring and reporting system does not integrate expenditure data at the central and local levels, it will not provide a complete overview of the country's public expenditure on climate change.

Furthermore, climate change expenditure includes private sector spending, especially on climate change mitigation. Viet Nam does not have a system to track private sector spending in this area, although some relevant private investment projects are entitled to preferential policies such as tax incentives, concessional loans, etc. Hence, in principle, the most essential data in this area can be collected through the data of organizations that approve and grant incentives for private investment projects (e.g., Environmental Protection Fund, National Technology Innovation Fund, etc.).

Recommendations:

It is necessary to develop a comprehensive monitoring and reporting system for climate investment and expenditure, to improve budgeting and climate change policy and planning, and to communicate climate expenditure to the international community. This should include the following: (i) Investment expenditure and recurrent expenditure; (ii) Integration of public expenditure at the central and provincial levels; and possibly (iii) Private investment in climate change.

In order to gradually build a systematic tracking and reporting approach, the following elements should be considered:

- *Review and update the Guidelines on Classification of Public Investment for Climate Change that should become more scientific and detailed, to be easier to apply and allow the classification of both investment and recurrent expenditure on climate change.* The 2014 CPEIR methodology has the advantage of classifying both investment and recurring expenditures; however, the criteria

may not be adequately detailed, resulting in the fact that many activities are classified in a same group though their technical contents are very different. This method does not have a solid basis to assign different weights of public spending on climate change to each expenditure item. The guidance on classification of public investment for climate change according to Decision 1068 of MPI (2018) are more detailed but only apply to the classification of public investment without guidance for recurrent expenditure. Furthermore, the percentage of climate change relevance is either 0% or 100%, leading to relatively large errors. The guidance to be developed should include a simple report template so that agencies can use the template to by themselves.

- *For public investment expenditures, the request to provide information on the climate change relevance in the investment policy reports and project feasibility studies should be integrated into legal documents (e.g. the ODA Decree) and guidance documents for budget planning and estimation.* The system needs to track projects over their life-cycle; from conception to completion. This means that the tag is carried through the planning and budgeting process, permitting compilation of climate budgets at any stage of the process. Thus, the projects need to be tagged and include the description of climate change related content in the project proposal phase. Annually, the MPI should embed specific requirements on climate related information in guiding documents for planning and budgeting. It should also be required that information on disbursement of climate change related items is included in the annual project implementation report.
- *For recurrent public expenditure: It is necessary to include a single task code for climate change spending in the budget index in order to track climate change spending through the Treasury and Bank Management Information System (TABMIS).* Climate change is not a separate sector like education, health, or transport, but is interdisciplinary, and spending on climate change covers all sectors. Thus, like the public investment spending, it is necessary to first clarify which tasks serve climate change goals in order to define how much of a budget is climate change relevant in each sector. As per the state budget index, classification is based on the state budget expenditures for national programs, targets, projects and respective expenditures are tracked separately. Therefore, climate change spending needs to be coded to be tracked separately through the TABMIS.
- *A unified software system throughout the country should be upgraded to integrate the tracking of disbursements of central and provincial public investment projects.* As a result, it is possible to obtain continuous and annual information on the climate change spending on through this system. It can be built as a new function integrated in the existing software for public investment projects reporting that MPI is managing. International experiences in climate finance tracking are available from a number of countries, demonstrating a variety in terms of features such as centralisation of the process, automation of the process, the finance areas which are included, and the degree of detail of the climate finance typology. Useful lessons are accessible in relevant documentation and should be consulted[12].
- *For off-budget State expenditure. There are incentive funds such as that grant incentives to private investors such as low interest loans for energy efficiency investments, and some businesses benefit from tax exemptions and/or subsidies with relevance to climate change.* This concerns public expenditure and requires special efforts to map (retrospectively, as in a CPEIR), or to monitor on a real-time basis. It was missed out in the CPEIR of 2014 and the present CPEIR. This requires

[12] A useful source may be: UNDP (2019) Knowing what you spend: a guidance note for Governments to track climate finance in their budgets. Climate Change Financing framework – Technical Note Series. See: https://www.undp.org/content/undp/en/home/librarypage/climate-and-disaster-resilience-/knowing-what-you-spend.html

cooperation of the relevant special funds and mechanism of different ministries that target the business sector. Data from tax and custom agencies on regulated products, such as products exempted from import taxes can be used as a basis too, i.e. it is not necessarily to do company-by-company or project-by-project reporting.

- *For private sector investment. New regulations might be introduced for (large) businesses to report on their climate change adaptation and emissions mitigation investments and expenditures as part of their annual financial statements, encouraging them to follow similar typology and methodology to public expenditure monitoring.* This could include mandatory estimates of planned climate change relevant investments as they apply for investment licences. If such information is tracked in a separate module, it would provide a important data on national climate change expenditure.

6.3 Use the CPEIR results effectively

The CPEIR information can be used to strengthen the climate change responsiveness of the public finance management system, promote a shift from input-based to output-based budgeting and promoting further climate-related interventions through provinces and line ministries. It can also be used to adjust policies, and to raise finance from different sources. The results of CPEIR can be used to perform the following tasks:

- *Conduct CPEIR on a regular and periodic basis in order to publish and provide information on climate change investment, to inform future policy formulation and to demonstrate Viet Nam's efforts and commitment to implementing the Paris Agreement on Climate Change.* The CPEIR provides a detailed snapshot of public climate change investment and expenditure by sector ministries and provinces, including a list of projects, programs, total investment, capital sources (central, local, national, international budgets, etc.), the proportion of climate change investment against total annual or medium-term public investment plan, etc.
- *Focus budget-policy link analysis and adjustment on sectors the biggest efficiency improvement potential.* Sectors where large allocations are already being made also have the biggest potential for efficiency improvement, which are water management in agriculture (CCD1.3) and transport infrastructure (CCD2.3). Strategic consideration is also needed in the distribution of funds between sectors, to ensure that sector-based allocation reflects priorities.
- *Prepare, adjust and supplement the annual budget in line with the 5-year medium-term public investment plan related to climate change.*

    a. The CPEIR data shows the expenditure on climate change over the years. Through data analysis, ministries and provinces could identify whether the investment rate for climate change is reasonable or not, too low or too high compared to the total budget, or whether it is aligned with the strategy/action plan on climate change in their respective sectors or provinces. Based on this, ministries and provinces could review and analyse the causes of discrepancies and adjust the investment list and budget allocation accordingly.

    b. The CPEIR results can provide information and recommendations to policymakers about the appropriateness of investments related to climate change against to the climate challenges for each sector, province, and the whole country to adjust and allocate budget.

- *Inform the use of fiduciary instruments to achieve climate change targets.* The CPEIR period analysis and real time budget monitoring data can also be useful for making policy adjustments. For example, the information can be used to promulgate financial instruments to synergise the climate change response through financial incentives (tax exemptions or subsidies), to discourage undesirable behaviours (e.g. carbon or other environmental taxes), or the issuance of public sector bonds for areas of financial paucity. Feasibility assessment of the use of financial instruments to achieve climate change targets should be explored by MPI and MoF.
- *Establish a basis for mobilizing and diversifying domestic and international funding sources to address climate change:* The results of data analysis and the proportion of budgets that have been and will be invested in climate change show the balance of investment in some specific response areas, as well as the investment harmonization between climate change adaptation and mitigation goals of each ministry and province in each period. On that basis, ministries and local governments can identify climate change and green growth priorities that have not been appropriately invested in and can adjust allocations and/or mobilize additional investment, through established or new channels, including ODA and innovative financing modalities. Some international finance partners are realising the value of climate finance mapping to help prioritise areas for investments, for example, NDC-Partnership in Viet Nam and the Green Climate Fund through its Country Programme initiative. The updated NDC of 2020 calls for support from "the international community to support implementation of its contribution in the updated NDC and direct their support towards the low-carbon development and climate change adaptation roadmap".
- *Establish a basis for improving citizens participation in responding to climate change.* The climate budget supply-side analysis can help to meet demand-side perceptions of effectiveness of climate expenditures, from NGOs, communities, parliamentarians and auditors. The climate budget can be an entry point for collaboration on climate allocation and strengthening the climate response. Increasing the stakeholder base for which climate budget information is accessible promotes transparency and accountability, and creates capacity to review climate budgets from multiple angles. The creation of accessible summary budget documents (such as citizens budgets[13]) and sharing of climate budgets with the wider community will help advance the climate narrative and promote strengthening of the climate response.

6.4 Strengthen capacity on climate change policy and finance

Review of public climate change investment and expenditure and planning by ministries and provinces should be strengthened to ensure a clear and comprehensive analysis of public sector tasks and prioritized expenditure. Simultaneously, ministries and provincial People's Committees, and provincial DPIs must have a solid understanding of climate change and green growth policies and the ability to assess the impacts of climate change and necessary responses. Hence, it is necessary to strengthen capacity of officials on climate change and green growth policies, and guidelines for climate change investment and expenditure review such as classification, coding, analysing and preparing reports. The roll-out of a climate change tracking system will need to be promoted through capacity building workshops for provinces and ministries coupled to Training-of-Trainer courses.

Sector ministries should be the first priority for capacity building and shaping the sector-based responses to climate change. It is crucial to enhance capacity of ministries on climate change

[13] E.g. https://www.oecd.org/governance/budget-transparency-toolkit/applying-transparency/openness-and-civic-engagement/

expenditure, as a basis for determining priority targets for decision-making, actions, solutions as well as further mainstreaming of climate change across relevant sectors. The National Assembly and provincial People's Councils make the final decisions about budget allocations so building their capacity on climate finance is also important. The capacity of provinces must be built to establish links between vulnerability, planning and budgeting in the context of strengthening policy development and implementation, of the NAP and NDC, and the VGGS and NCCS for the period from 2021 onwards to ensure effectiveness of significant expenditures. As provinces shape their MTPIP, building adequate capacity to embed climate change priorities into the planning and budgeting process is vital. Given the strong role of the private sector in mitigation activities, capacity building activities should also cover climate change relevant private investors.

There is also a need to build capacity to implement the proposed public climate expenditure monitoring under the remit of MPI (in collaboration with MONRE and MOF) to allow provincial and ministry representatives to undertake this independently. Climate expenditure monitoring would be required in all provinces to capture their climate budgets and would be strengthened by annual reporting on climate change and green growth action plans.

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Annex 1 Overview of localised and sectoral plans

no	Province	Region	NTP report to 2015	CC Action Plan	GG Action Plan	PIPA
1	Cao Bằng	North	n	n	v	v
2	Lào Cai	North	v	v	o	v
3	Tuyên Quang	North	v	n	n	v
4	Hòa Bình	North	v	v	o	v
5	Quảng Ninh	North	n	v	v	v
6	Thanh Hóa	Central Coast	n	v	v	v
7	Hà Tĩnh	Central Coast	v	v	v	v
8	Quảng Bình	Central Coast	v	n	o	v
9	Thừa Thiên Huế	Central Coast	n	n	v	n
10	Kon Tum	Central Highland	v	n	v	v
11	Gia Lai	Central Highland	v	n	n	v
12	Đăk Lắk	Central Highland	v	n	o	n
13	Đắk Nông	Central Highland	v	v	n	n
14	Lâm Đồng	Central Highland	n	v	o	v
15	Long An	Mekong Delta	v	n	n	n
16	Tiền Giang	Mekong Delta	v	n	n	n
17	Đồng Tháp	Mekong Delta	v	n	n	v
18	Vĩnh Long	Mekong Delta	n	n	n	n
19	Trà Vinh	Mekong Delta	n	n	n	n
20	Hậu Giang	Mekong Delta	v	v	v	v
21	Sóc Trăng	Mekong Delta	v	v	v	v
22	Bến Tre	Mekong Delta	v	v	o	v
23	Kiên Giang	Mekong Delta	v	n	v	n
24	Bạc Liêu	Mekong Delta	v	v	v	v
25	Cà Mau	Mekong Delta	v	v	v	v
26	Cần Thơ	Mekong Delta	v	n	o	v
27	Quảng Nam	Central Coast	n	v	n	n
28	Bắc Ninh	North	v	v	v	v
29	An Giang	Mekong Delta	v	v	v	v

No	Ministries	CC Action Plan	GG Action Plan	PIPA
1	Ministry of Agriculture and Rural Development (MARD)	v	v	v
2	Ministry of Natural Resources and Environment (MONRE)	v	v	n
3	Ministry of Transport (MOT)	v	v	n
4	Ministry of Industry and Trade (MOIT)	n	v	n
5	Ministry of Construction (MOC)	v	v	n
6	Ministry of Science and Technology (MOST)	v	n	n

legend	
v	= available
o	= exists, but not available
n	= no information