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Department of Climate Change

Evaluation of the National Adaptation Plan Process of Viet Nam 2021-2025

December 2025

Citation: Department of Climate Change. (2025). *Evaluation of the National Adaptation Plan Process of Viet Nam 2021-2025.*

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Acknowledgements

This evaluation of the National Adaptation Plan process of Viet Nam was prepared by Dang Quang Thinh, Tran Thanh Thuy, Tran Anh Phuong, Nguyen Thanh Thuy, Nguyen Bich Huong, Nguyen Thu Hien.

Suggestions and contributions were provided by Tran Thi Thanh Nga, PhD, Head of Climate Change Adaptation Division, Department of Climate Change, and Emilie Beauchamp, Lead, Monitoring, Evaluation, and Learning for Adaptation to Climate Change, International Institute for Sustainable Development.

It was made possible through the financial support of German Federal Ministry of Economic Cooperation and Development (BMZ).

About the NAP Global Network

The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes, and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates South-South peer learning and exchange, supports national-level action on NAP formulation and implementation, and generates, synthesizes, and shares knowledge. The Network's members include individual participants from more than 155 countries involved in developing and implementing National Adaptation Plans. Financial support for the Network has been provided by Austria, Canada, Germany, Ireland, the United Kingdom, and the United States. Additional support has been provided by ClimateWorks Foundation. The Secretariat is hosted by the International Institute for Sustainable Development (IISD). For more information, visit www.napglobalnetwork.org.

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This project is undertaken with the financial support of:
Ce projet a été réalisé avec l'appui financier de :

In partnership with Canada

Federal Ministry for Economic Cooperation and Development

Irish Aid
An Roinn Gnóthaí Eachtracha agus Trádála
Department of Foreign Affairs and Trade

Secretariat hosted by:
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Abbreviations and Acronyms

ADB	Asian Development Bank
CCA	climate change adaptation
CO_2	carbon dioxide
COP	Conference of the Parties
GDP	gross domestic product
GESI	gender equality and social inclusion
GHG	greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
M&E	monitoring and evaluation
MAE	Ministry of Agriculture and Environment
MARD	Ministry of Agriculture and Rural Development
MIC	Ministry of Information and Communications
MOC	Ministry of Construction
MOCST	Ministry of Culture, Sports and Tourism
MOF	Ministry of Finance
MOH	Ministry of Health
MOIT	Ministry of Information and Technology
MOLISA	Ministry of Labor, Invalids, and Social Affairs
MONRE	Ministry of Natural Resources and Environment
MOST	Ministry of Science and Technology
MOT	Ministry of Transportation
MPI	Ministry of Planning and Investment
NAP	national adaptation plan
NDC	nationally determined contribution
ODA	official development assistance
UNDA	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

1.0 Introduction

1.1 Overview of Climate Change Adaptation Worldwide and in Viet Nam

Viet Nam has a tropical monsoon climate. Due to its long territorial stretch in latitudes and diverse topography, Viet Nam has witnessed significant climatic differences among the regions across the country. This also makes it more vulnerable to extreme weather phenomena and natural disasters. Coastal areas and deltas, especially the Mekong Delta, have been seriously affected by sea level rise, saltwater intrusion, and extreme weather phenomena such as typhoons, floods, and droughts. Mountainous areas have been frequently affected by flash floods and landslides with increasing intensity. Climate change is expected to exacerbate typhoons, floods, inundations, flash floods, and landslides, affecting 70% of the population and causing a loss of approximately 1%–1.5% of GDP. This poses a serious threat to Viet Nam's efforts to eradicate hunger, reduce poverty, and achieve sustainable development. In the period 2011 to 2020, extreme climate events caused serious economic damages with total losses reaching about USD 10 billion [54].

In response to the negative impacts of climate change, Viet Nam has proactively promulgated numerous policies and guidelines. It participated in the Paris Agreement on climate change at the 21st United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 21) in Paris in 2015. The Paris Agreement outlines the responsibilities of all parties in terms of reducing greenhouse gas (GHG) emissions, adapting to climate change, making financial contributions, transferring technology, and strengthening capacity, mainly through the implementation of nationally determined contributions (NDCs). Viet Nam has issued a plan for implementing the Paris Agreement, which came into effect in 2016 under Decision No. 2053/QD-TTg dated October 28, 2016, of the Prime Minister (referred to as the Paris Agreement Plan) [15]. To implement the Article 7 of the Paris Agreement, Viet Nam has developed and implemented the National Adaptation Plan (NAP) for the period 2021–2030, with a vision to 2050.[1] The overall objective of the NAP is to reduce vulnerability and risks caused by the impacts of climate change through strengthening the resilience and adaptive capacity of communities, economic, and ecological components and promoting the mainstreaming of climate change adaptation (CCA) into the strategy and planning system. This goal is fully consistent with the basic objectives of the NAP under the UNFCCC. Viet Nam's NAP has three specific objectives:

1. Improve the effectiveness of CCA by strengthening the government's management of climate change, including CCA activities, and promoting the integration of CCA contents into relevant strategies and planning.
2. Strengthen resilience and enhance the adaptation capacity and readiness of communities, economic sectors, and ecosystems through investments in adaptation actions, science and technology, and raising awareness to adapt to climate change.
3. Reduce disaster risks and minimize damage through preparedness to respond to natural disasters and extreme climate events increased due to climate change [55].

[1] Decision No. 1055/QĐ-TTg dated July 20, 2020.

The NAP's objectives are set for the period from 2021 to 2030, with vision to 2050. The year 2025 will mark the last of its first implementation period. Thus, an evaluation of Viet Nam's NAP is urgently needed to determine the achievements and draw lessons learned for the next implementation period. The evaluation will examine the progress made in implementing the NAP and results in practical adaptation work. It will also identify actions that promote the plan's implementation for the remainder of the period to 2030.

To align with the actual situation and new international commitments on climate change (such as Viet Nam's new commitments at COP 26, the National Climate Change Strategy to 2050, and the updated NDC 2022), the NAP for the period 2021–2030, with a vision to 2050, has been reviewed and updated under Decision No. 1422/QD-TTg dated November 19, 2024. This update aims to ensure consistency and synchronization with CCA content in the 2020 Law on Environmental Protection and related policies. The specific objectives of the updated NAP focus on enhancing the resilience and adaptive capacity of natural, economic, and social systems; mitigating disaster risks and damages; and improving institutions while leveraging potential and resources for effective CCA. The main tasks and solutions are divided into three groups: enhancing resilience and adaptive capacity to climate change; mitigating disaster risks and reducing damage; and improving institutions by leveraging potential and resources [16].

1.2 Objectives and Scope of NAP Process Evaluation

The general objective of the evaluation is to determine whether the NAP process is well suited to achieving its three overarching objectives: reducing vulnerability and risk caused by the impacts of climate change; strengthening the resilience and adaptive capacity of communities, including economic and ecological components; and promoting the mainstreaming of CCA into the strategy and planning system.

The specific objectives include

- evaluating the implementation status of CCA activities in Viet Nam according to groups of monitoring and evaluation (M&E) content;
- identifying gaps and challenges in implementing the NAP in Viet Nam; and
- identifying lessons learned to improve the implementation of the NAP process effectively.

Scope of the NAP Evaluation

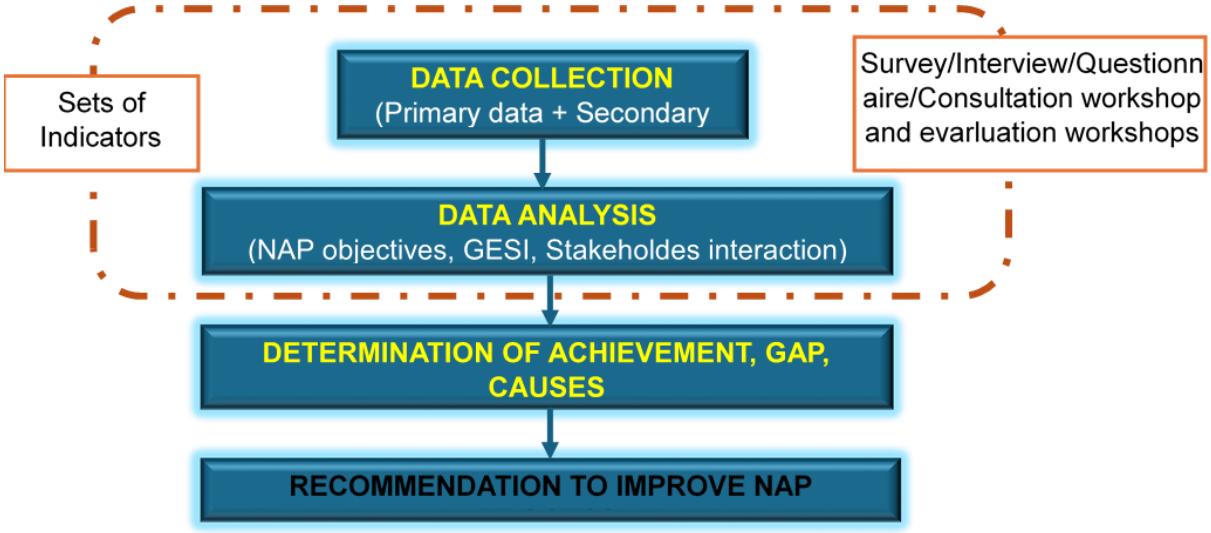
Within the scope of this report, the assessment of CCA activities is based on the implementation results of ministries, sectors, and localities before February 28, 2025. Since March 2025, there have been significant changes in the organizational structure of ministries and sectors. Specifically, the Ministry of Planning and Investment has merged with the Ministry of Finance to form the Ministry of Finance (MOF); the Ministry of Transport has merged with the Ministry of Construction to form the Ministry of Construction (MOC); the Ministry of Natural Resources and Environment (MONRE) has merged with the Ministry of Agriculture and Rural Development (MARD) to form the Ministry of Agriculture and Environment (MAE); the Ministry of Information and Communications has merged with the Ministry of Science and Technology to form the Ministry of Science and Technology; and the Ministry of Labor, Invalids and Social Affairs (MOLISA) has merged with the Ministry of Home Affairs to form the Ministry of Home Affairs.

1.3 Methodology

1.3.1 Evaluation Analysis Framework

After establishing the evaluation requirements and the objects of evaluation to be considered, a process was developed to describe the evaluation steps and their interactions, as demonstrated in Figure 1.

Figure 1. Steps of the NAP process evaluation



Source: Authors.

1. **Data collection:** The collected data includes secondary and primary data. The secondary data are the annual NAP reports of ministries and provinces reported to the Department of Climate Change and collected from relevant stakeholders through the online CCA M&E platform and other complementary channels. Primary data has been collected through interviews and consultation meetings—for example, gathering information about the experiences of stakeholders in NAP implementation, particularly through case studies on successes or challenges to implementation.

2. **Data analysis:** Using collected data, the evaluator analyzed and summarized the results of implementing CCA activities assigned to ministries, ministerial-level agencies, and provinces. Data analysis was conducted under six groups of M&E content, including (1) state management of climate change; (2) strengthening resilience and capacity to adapt to climate change in all fields; (3) reducing natural disaster risks and minimizing damage caused by climate change; (4) investment resources for CCA; (5) science, technology, and international cooperation; and 6) training, communication, and awareness raising. Based on collected data, the report will focus on analyzing 72 indicators according to Decision No. 148/QD-TTg dated January 28, 2022, of the Prime Minister promulgating the national-level CCA M&E system.

3. **Determination of achievements, gaps, and causes:** The results of data analysis determined the outcomes achieved, followed by analysis of the shortcomings and their causes in the process of implementing NAP.

4. **Recommendations to improve NAP process:** Through the achieved results and assessment of existing problems and causes, propose solutions to strengthen the implementation of the NAP based on the current state management of CCA, Viet Nam's commitments on CCA, and its experience in implementing CCA activities at the national level, as well as in ministries, sectors, and localities.

The NAP specifies goals and solutions for CCA in the NDC. Hence, the NAP evaluation will be an important basis for the process of reviewing and updating the NDC. Viet Nam aims to update its NDC by 2030, and the evaluation is crucial at this juncture.

1.3.2 Criteria and Evaluation Questions

Viet Nam's CCA activities, in terms of its NAP objectives, will be assessed by its performance across the following evaluation criteria:

- relevance: Are the NAP objectives, tasks, and activities responding to the main climate risks and challenges in Viet Nam?
- effectiveness: Is the NAP achieving its proposed objectives, tasks, and activities?
- efficiency: Are resources and institutions to deliver the NAP used efficiently?
- sustainability: Will the NAP implementation results and benefits be long-lasting?
- gender equality and social inclusion: Is the NAP meeting the needs of the most vulnerable people and ecosystems?

The questions listed in Table 1 will be used to assess the process and provide input for further improvements and updates to the NAP.

Table 1. Key evaluation questions

No.	Questions	Description
1	**Relevance** Has the NAP addressed current and emerging climate risks under different climate scenarios?	To assess the relevance of the NAP, it is important to look back at climate risk scenarios and whether climate risks, as well as the needs and priorities of communities, have been addressed.
	How has the implementation of the NAP contributed to reducing disaster risks and minimizing damage from natural disasters and extreme climate events?	To explore how the NAP has enhanced preparedness and response strategies for dealing with climate change impacts.
2	**Effectiveness** How does the NAP implementation achieve the objective of improving the effectiveness of CCA?	To understand how the NAP helps enhance the effectiveness of CCA measures, it is important to consider how it contributes to improved planning and execution aimed at reducing the impacts of climate change.
	How does the NAP implementation achieve the objective of strengthening resilience and enhancing the adaptive capacity of communities, economic sectors, and ecosystems?	To explore how the NAP helps communities, economic sectors, and ecosystems better withstand and adapt to climate change. It aims to understand how the NAP contributes to increasing resilience and improving the ability of these groups and systems to respond effectively to changing climate conditions.

No.	Questions	Description
3	**Efficiency** Is the cooperation among ministries and provinces effective and efficient in deploying the NAP implementation process?	To determine if these entities are successfully working together to carry out the activities and objectives outlined in the NAP by exploring if they have collaborative projects or programs that leverage the strengths and resources of ministries and provinces, or if they have any coordination mechanisms.
	To what extent has the NAP process guided ministries and localities to increasingly assume their responsibility to adapt to climate change?	To explore how effectively the NAP has influenced and encouraged ministries and local authorities to take on their roles and responsibilities in addressing climate change impact.
4	**Sustainability** What are the gaps and challenges of NAP implementation for positive outcomes delivered and sustained?	To explore missing elements in the plan, areas where CCA actions are not being fully executed or aspects that are not being adequately addressed, and issues such as financial constraints, technical difficulties, a lack of coordination, and inadequate human capacity.
5	**Gender equality and social inclusion** Have different social groups, including the most vulnerable groups, participated in the NAP process? Has the NAP reduced the vulnerability of the most marginalized and vulnerable groups identified?	To evaluate whether the NAP is reducing vulnerability, it is important to look at the systemic and structured sources of vulnerability.

Source: Authors

1.3.3 Criteria for Tracking the NAP's Implementation Status

One of the main objectives of this evaluation report is to monitor the progress on the implementation of the NAP's 142 priority adaptation tasks and measures with four assessment criteria to measure progress (Table 2). This is done by determining the completion rate for each group of measures using data collected from reports and surveys from ministries, sectors, and localities.

Table 2. Criteria for evaluation of NAP tasks

Status	Definition
Task abandoned	A previously planned task or measure has been reviewed and removed from the NAP because it is no longer considered relevant or necessary.
Continued in the updated NAP	The task or measure is ongoing and will be carried forward into the updated NAP (mentioned in Decision No. 1422/QD-TTg dated 14 November 2024).
Completed	The measure or action has been fully implemented, achieving its intended objectives without requiring further modifications or follow-ups.
Unsure	Unable to provide information on the status of implementation.

Source:

2.0 The NAP's M&E System

2.1 The NAP Process in Viet Nam

CCA is an adjustment in natural or human systems to respond to current or future climate impacts, thereby reducing harm or taking advantage of climate change [2]. Human activities aimed at adapting to climate change are called adaptation activities. At the national level, adaptation to climate change is accomplished through policies, planning, and investments to address the challenges and opportunities that climate change presents.

Viet Nam started its NAP process in 2017. On July 20, 2020, the Prime Minister issued the NAP for the 2021–2030 period, with a vision to 2050 (hereinafter referred to as the NAP) in Decision No. 1055/QD-TTg. The overall objective of the NAP is to reduce vulnerability and risk caused by the impacts of climate change; strengthen the resilience and adaptive capacity of communities, including the economic and ecological components; and promote the mainstreaming of CCA into the strategy and planning system. This goal is fully consistent with the basic objectives of the NAP under the UNFCCC.

The NAP includes three specific objectives:

1. Improve the effectiveness of CCA through strengthening the state management of climate change, including CCA activities and promoting the integration of CCA into the strategy and planning system.
2. Strengthening resilience; enhancing the adaptive capacity of communities, economic sectors, and ecosystems through investment in adaptation actions, science, and technology; and raising awareness about preparing to adjust to climate change.
3. Disaster risk and damage reduction, as well as preparedness to respond to natural disasters and extreme temperature increases due to climate change.

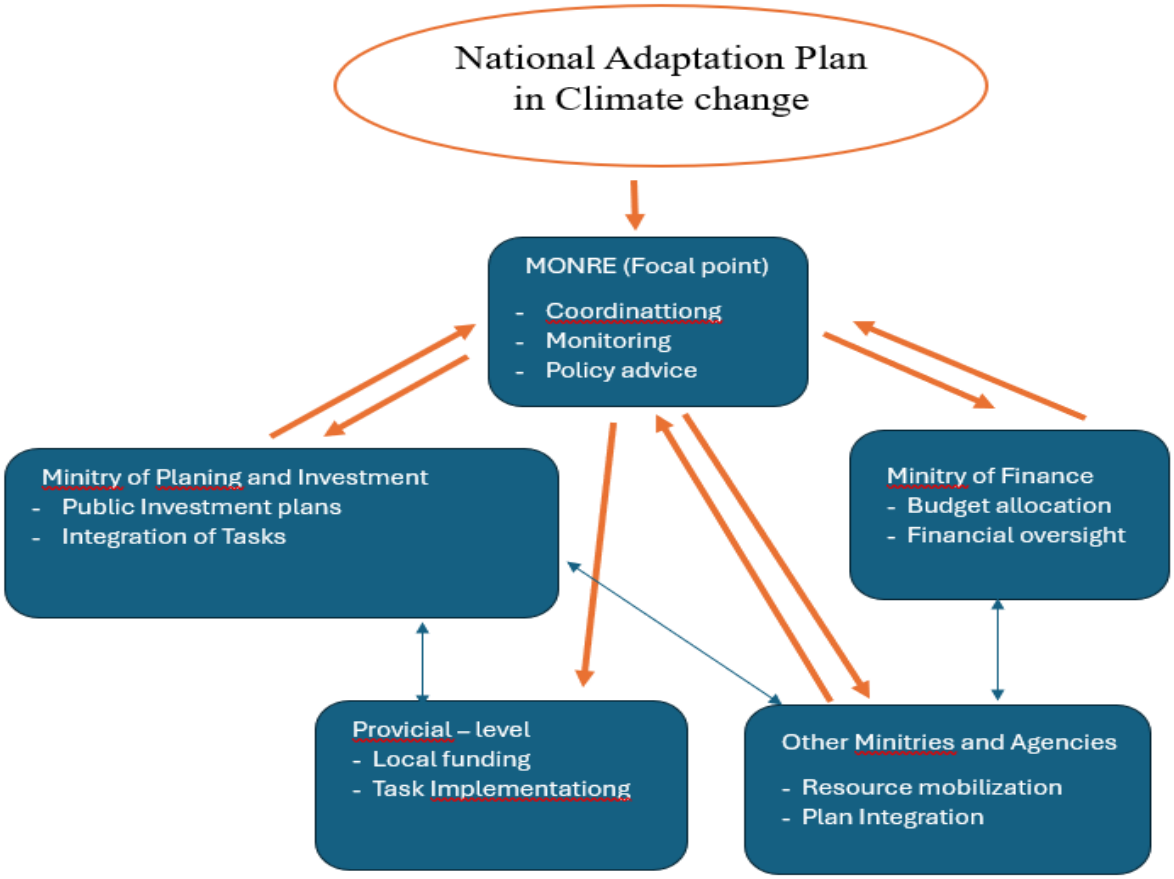
Viet Nam's NAP identifies three groups of priority tasks and solutions and a list of 142 specific actions structured under six groups to achieve the above goals. Specifically, the tasks are assigned as follows: 43 tasks in the field of agriculture; 26 tasks in the field of natural disaster prevention; seven tasks in the field of environment and biodiversity; 12 tasks in the field of water resources; 23 tasks in the field of infrastructure; seven tasks in the field of public health; five tasks in the field of labour and social affairs; seven tasks in the field of culture, sports, and tourism; and 12 tasks for strengthening state management and resources.

The plan also clearly stipulates the responsibilities of ministries and localities in implementing tasks. In particular, MONRE (now MAE) is the focal and coordinating agency, responsible for monitoring, urging, reviewing, updating, evaluating the implementation status, and developing policies and mechanisms related to the NAP. The Ministry of Planning and Investment (now MOF) reviews and synthesizes investment projects and socio-economic development planning, and coordinates the implementation and evaluation of NAP implementation. The MOF balances and allocates regular funding from the central budget and implements assigned tasks. The People's Committees in provinces and cities are responsible for allocating funding from local budgets. Ministries, ministerial-level agencies, government agencies, and localities proactively implement tasks, integrate them into planning, mobilize resources, raise awareness, propose adjustments, and periodically report on implementation status to the MONRE.

Regarding M&E, the MONRE presides at the national level, ministries and branches are responsible at the sectoral level within the scope of assigned functions and tasks, and the Department of Natural Resources and Environment advises the provincial People's Committees to monitor and periodically report.

The responsibilities for NAP implementation are summarized in Figure 2.

Figure 2. Responsibilities for NAP implementation



Source: Prime Minister, 2020 [17].

2.2 Viet Nam's National M&E System for Climate Change Adaptation Activities

The national M&E system for CCA[2] includes:

(a) The goals of the system

- Establishing and operating a national M&E system to monitor and evaluate CCA activities.

[2] Decision No. 148/QD-TTg dated January 28, 2022.

- Provide a basis for the management, coordination, and improvement of the effectiveness of CCA activities and state management of climate change.

(b) Scope and subjects of application

- This system determines M&E contents and indicators, as well as implementation responsibility.
- This system applies to ministries, ministerial-level agencies, and provincial and municipal People's Committees that carry out CCA activities under their management.

(c) M&E contents

The system prescribes six groups of M&E contents, which are summarized as follows:

1. Government management on climate change, including development of a legal framework, institutions, and policies; formulating strategies, master plans, plans, programs, schemes, projects; formulating and implementing national technical standards, regulations, and guidelines; developing reports on CCA; mainstreaming CCA contents into strategies, master plans, and plans; and improving the organization and human resources to respond to climate change.
2. Strengthen resilience and capacity to adapt to climate change in the fields of agriculture, forestry, and fisheries; environment and biodiversity; water resources; transportation; construction – urban; industry, commerce, and services; health and public health; labour – society; and culture, sport, and tourism.
3. Reducing disaster risks and minimizing damage caused by climate change through hydrometeorological observation; climate change, sea level rise, and saline intrusion monitoring; and disaster risk management.
4. Resources for CCA, including investment resources; management and use of investment resources.
5. Science, technology, and international cooperation, including scientific research, technology application.
6. Training, communication, and awareness raising: professional training on climate change; communication and awareness-raising activities on climate change.

The following detailed M&E indicators were also issued under the decision:

(a) M&E database

M&E databases are built and operated online by MONRE (now MAE), ensuring information security. The M&E database has database management software and all M&E information, including progress and results of implementation of CCA activities; M&E reports of ministries, ministerial-level agencies, and provincial-level People's Committees; and other relevant information.

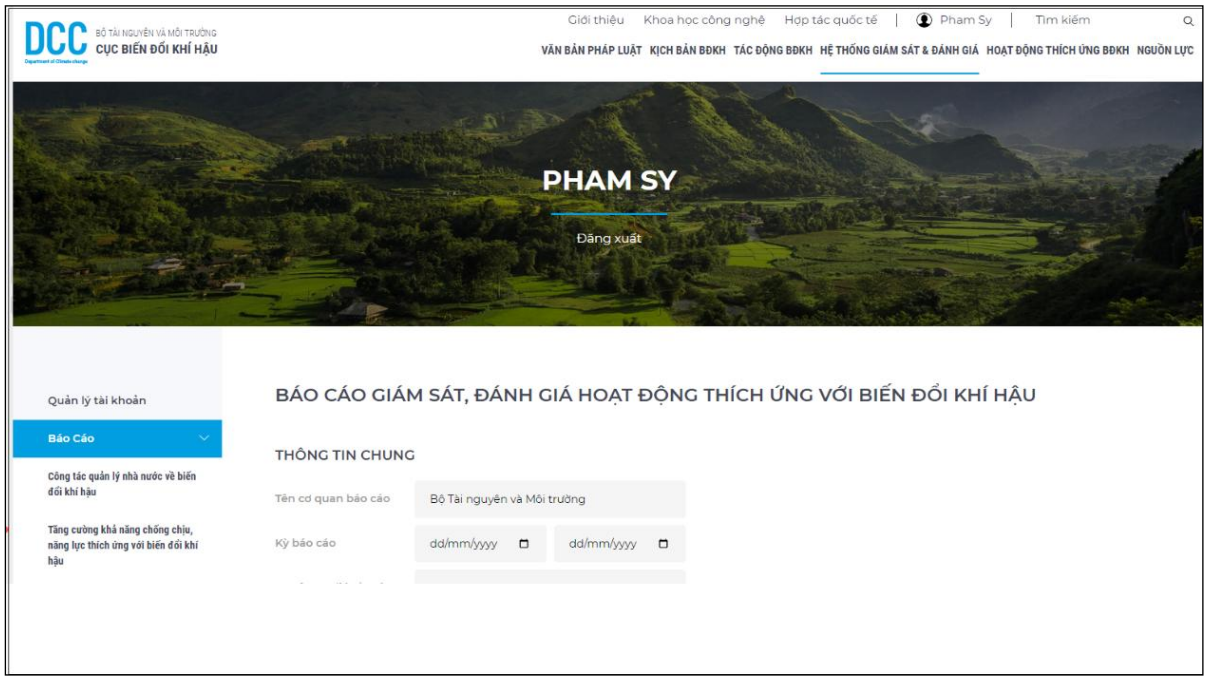
The M&E database is integrated into the web portal of the CCA database at http://adaptation.dcc.gov.vn, available in both English and Vietnamese versions. The system allows ministries, sectors, and provinces online access to declare, edit, compile statistics, manage, and prepare M&E reports online.

The M&E database includes seven main functions, as shown in Figure 4, including account login and management; report generating; data entering according to management scope; approved report attachment; report reviewing, editing, and submitting; report exploring; and data storing.

(b) Responsibility for implementation

- MONRE (now MAE) acts as the focal point of the Climate Change Adaptation M&E System. The ministry's responsibilities include organizing the implementation of the system, M&E activities within its management scope, building and managing relevant databases, building online databases for reporting, supporting other units in implementing the system, organizing comprehensive assessments every 5 years, and synthesizing reports for the purpose of state management.
- Ministries, ministerial-level agencies, and provincial People's Committees are responsible for organizing the M&E of CCA activities under their management. At the same time, these agencies must update information on progress and implementation results into the system database and report the results of annual M&E before December 25 via the online system according to the instructions of the MONRE [18].

Figure 3. The M&E database



Source: Online M&E database, DCC

Figure 4. Online M&E database[3]

Source: Online M&E database.

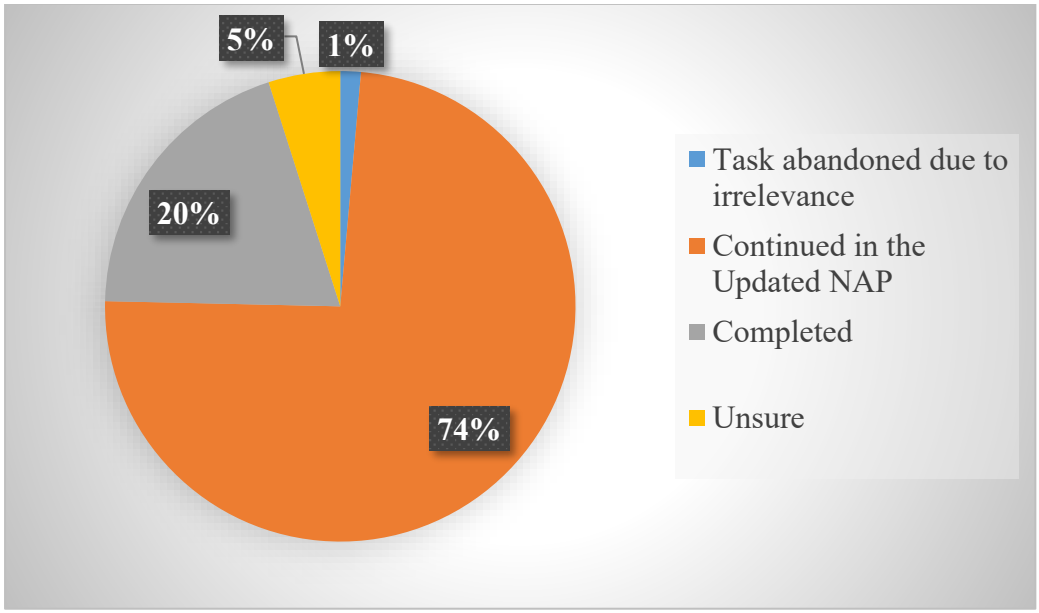
[3] See: http://adaptation.dcc.gov.vn

3.0 Results of the NAP Process Evaluation in Viet Nam

3.1 Implementation Status of the National Adaptation Plan

Figure 5 illustrates the implementation status of 142 tasks within the NAP, divided by four criteria, as indicated in Table 2. The figure reveals that a majority of tasks are ongoing and continue in the updated NAP. The detailed tasks for evaluation and classification based on the criteria in Table 2 are presented in Appendix A.

Figure 5. Implementation status of adaptation task/measures in NAP (Decision No. 1055/QD-TTg)



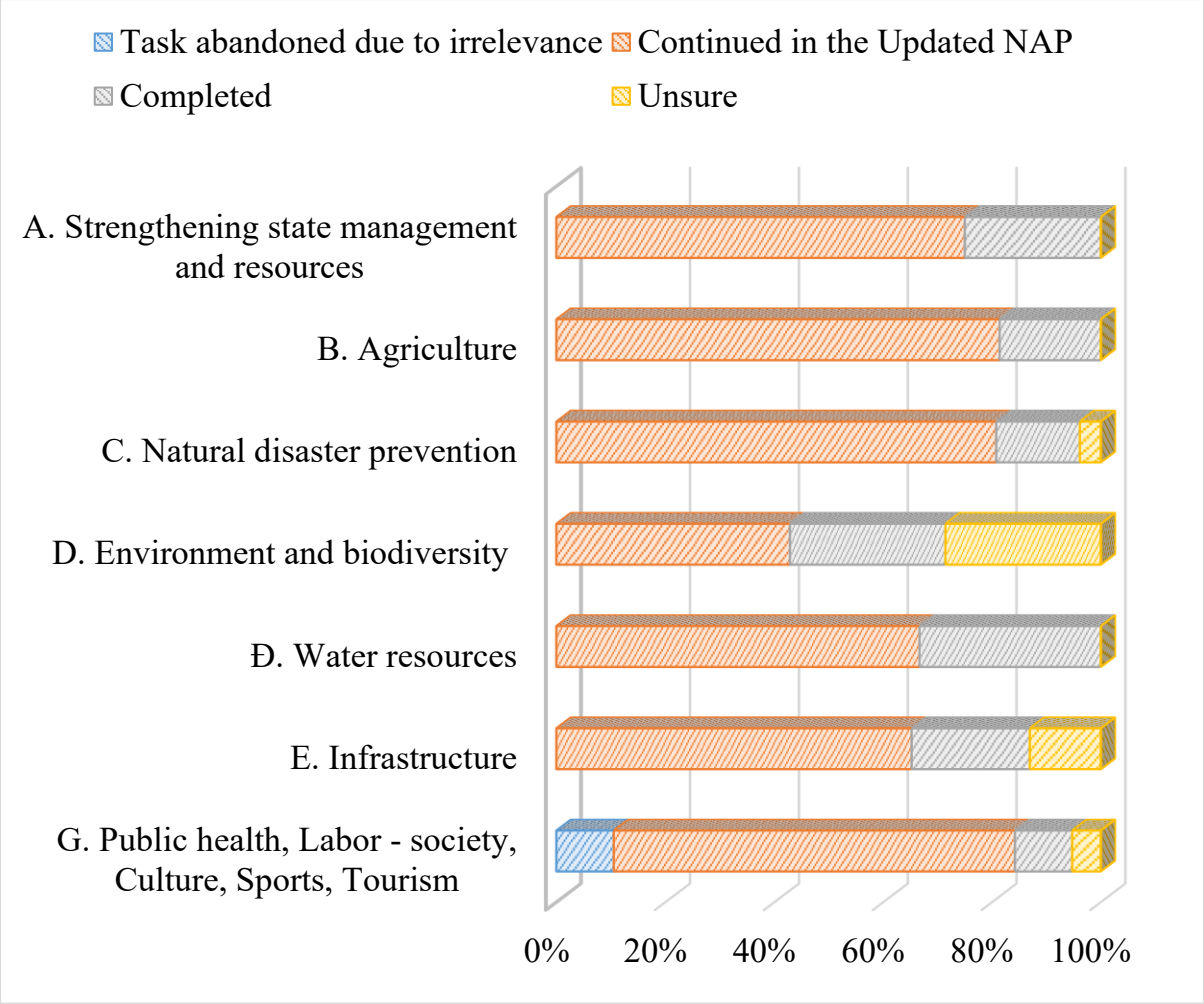
Source: From annual M&E reports and surveys.

According to annual report from the former MOLISA (now Ministry of Home Affairs), two tasks assigned to the ministry have become unfeasible due to significant challenges. The first task involves developing specific policies to support vulnerable groups and mainstream gender considerations into CCA activities. Although the initial goal was to issue these policies in 2023, formulating effective policies requires thorough research, careful review, consultation, and coordination with relevant stakeholders. Integrating elements from various sectors has encountered obstacles, which has slowed down progress, leading to the failure to meet the set timeline. Therefore, this task may need to be adjusted to ensure effective implementation. The second task involves developing a communication plan to promote green growth, focusing on two specific themes: Gender and Climate Change and Gender Equality in the Context of Climate Change. However, this plan lacks clear criteria, characteristics, and content, making it challenging to define precise objectives. Furthermore, although these two themes are closely interconnected in practice, they have been treated as separate tasks, which complicates implementation. Creating a unified communication plan would likely be more effective than developing two distinct plans. The lack of clear objectives and the fragmented approach may reduce the task's effectiveness or make it less suitable for the overarching goal of promoting comprehensive green growth.

Additionally, another critical factor impacting the feasibility of both tasks is the issue of funding. The absence of allocated funds for 2021–2022 has left the mission incomplete as targeted, reducing its urgency and potential for effective implementation. The lack of financial resources makes these tasks less relevant to the current context, requiring adjustments in planning or resource allocation to achieve the set objectives.

Figure 6 details the implementation status of adaptation tasks/measures categorized by task groups. The analysis results reveal a majority of ongoing tasks to be continued in the updated NAP category, particularly within Group B (Agriculture) and Group C (Natural disaster prevention). Notably, Group A (Strengthening state management and resources) and Group E (Infrastructure) also demonstrate a considerable proportion of tasks in progress. The completed category, while present across all task groups, shows more modest representation, suggesting that while progress is being made, many tasks are still in the implementation phase. Furthermore, the "unsure" and "task abandoned due to irrelevance" categories exhibit minimal presence, indicating effective monitoring and planning overall.

Figure 6. Implementation status of priority tasks in NAP by task groups



Source: From annual M&E reports and surveys.

Table 3 provides a detailed breakdown of the implementation status of 142 tasks within the NAP, categorized by both task groups and specific adaptation needs.

Further analysis of the 105 tasks continued in the updated NAP reveals that 102 tasks have undergone specific adjustments to their implementation timelines. Of all 105 tasks, 46 tasks have had their implementing entities modified or expanded, and 47 tasks have modified their content. The detailed modification/adjustment of the tasks from Decision No. 1055/QD-TTg that are continued and updated in Decision No. 1422/QD-TTg is provided in detail in Appendix B.

Table 3. Implementation status of 142 tasks in NAP by task groups and specific adaptation needs

Groups of tasks	Adaptation needs	Numberof tasks				
		Task abandoned due to irrelevance	Continued in the updated NAP	Completed	Unsure	Total
A. Strengthening state management and resources	1. Improvement of mechanisms and policies	0	1	2	0	3
	2. M&E of CCA activities	0	2	1	0	3
	3. Mobilization of resources	0	2	0	0	2
	4. Communication, awareness raising	0	1	0	0	1
	5. Scientific research and technology development	0	1	0	0	1
	6. International collaboration	0	2	0	0	2
B. Agriculture	1. Enhance the agricultural sector's climate change resilience through improving the policy and legal system; training, retraining, and capacity building	0	7	2	0	9
	2. Adjust farming plans, rationally arrange crop structure, and replicate models to increase the efficiency of agricultural land use and adapt to climate change	0	7	1	0	8
	3. Enhance crop resilience to diseases	0	3	0	0	3
	4. Improve disease prevention for livestock breeds in the context of climate change	0	7	0	0	7
	5. Ensure the efficiency of fisheries and aquaculture through improving methods, techniques, and improving the infrastructure of the fishery/aquaculture sector to adapt to climate change	0	6	2	0	8
	6. Strengthen forest protection and management, and improve forest quality to adapt to climate change	0	3	2	0	5

Groups of tasks	Adaptation needs	Numberof tasks				
		Task abandoned due to irrelevance	Continued in the updated NAP	Completed	Unsure	Total
	7. Increase the participation of the community in forest development through improving livelihoods and employment opportunities in forestry	0	2	1	0	3
C. Natural disaster prevention	1. Improve readiness to respond to climate change-induced disasters	0	10	1	0	11
	2. Improve disaster risk management system	0	4	2	0	6
	3. Minimize damage caused by natural disasters	0	7	1	1	9
D. The environment and biodiversity	1. Improve the adaptability of natural ecosystems and biodiversity	0	3	2	2	7
Đ. Water resources	1. Minimize the impacts of climate change on water resources	0	8	4	0	12
E. Infrastructure	1. Transportation	0	3	1	0	4
	2. Construction	0	10	4	2	16
	3. Industry, trade. and energy	0	2	0	1	3
G. Public health, labour – society, culture, sports, and tourism	1. Public health	0	6	0	1	7
	2. Labour – society	2	3	0	0	5
	3. Culture, sports, and tourism	0	5	2	0	7
Total		**2**	**105**	**28**	**7**	**142**

Source: Authors

3.2 Results of the NAP Implementation Process Based on the M&E System

The following section analyzes the content and presents results from the reports produced by ministries, ministerial-level agencies, and provinces through the M&E system. The evaluation provides findings according to the six thematic groups of content described earlier (in Section 2.1.2).

From tracking the progress of the 142 tasks from the 2020 NAP document, Table 4 shows the spread of tasks according to each of the six thematic groups from the M&E system.

Table 4. Distribution of 2020 NAP tasks across M&E content groups

M&E content group	Description	# of corresponding NAP tasks	Relevant NAP task groups (primary allocation)
1. State management on climate change	Legal framework, institutions, policies, strategies, plans, standards, reporting, mainstreaming, organization, human resources	6	A.1 (3), A.2 (3)
2. Enhancing resilience, adaptation capacity in key sectors	Agriculture, forestry, fisheries, environment, biodiversity, water, transport, construction, urban, industry, commerce, health, labour, culture, etc.	107	B (all 43), D (all 7), Đ (all 12), E (all 23), G (all 19)
3. Reducing disaster risks, minimizing climate change impacts	Observation, monitoring (climate, sea level rise, salinity), disaster risk management	26	C (all 26)
4. Resources for CCA	Investment resources, management/use of resources	2	A.3 (2)
5. Science, technology, and international cooperation	Scientific research, technology application, international cooperation	3	A.5 (1), A.6 (2)
6. Training, communication, and awareness raising	Professional training, communication, awareness raising	1	A.4 (1)
Total		**142**	

Source: M&E System

3.2.1 State Management on Climate Change

Improving Institutions and Policies

Since the issuance of the NAP in 2020, Viet Nam has also issued many policies and legal documents contributing to perfecting the institutional and policy system from central to local levels.

At the central level, the National Assembly issued the Law on Environmental Protection 2020, in which Chapter VII details the contents related to climate change, establishing principles and legal frameworks for adaptation activities, as well as M&E systems [13]. On that basis, the government has

issued several decrees, strategies, and plans detailing a number of articles of the Law on Environmental Protection,[4] including:

- the National Strategy on Climate Change for the period up to 2050[5] [19];
- the NAP for the 2021–2030 period, with a vision to 2050 (updated); and
- the National Climate Change System.

In addition, the MAE, as the host and implementer of CCA activities, has issued detailed regulations on climate change impact assessment and national climate assessment.[6] At the same time, the ministry has also promulgated detailed instructions on integrating climate change responses into strategies and planning.[7] Furthermore, other relevant ministries and sectors have issued legal documents related to CCA within their management scope, such as in the fields of agriculture, construction, transportation, science and technology, finance, health, and security.

At the local level, most provinces and cities have issued implementation documents closely following the direction from the central government, as well as applied flexible guidance for sectors (such as Circulars 01/2022/TT-BTMT [4] and 06/2023/TT-BTNMT [5]). The documents are the basis for identifying the risks associated with climate change and for developing strategies, planning, plans, and tasks related to adaptation activities suitable to local characteristics.

In summary, the comprehensive legal and policy developments arising from the 2020 Law on Environmental Protection and the National Climate Change Adaptation Plan have successfully established a robust institutional framework at both the central and local levels. This process has contributed to significantly improving Viet Nam's capacity to effectively guide and implement CCA activities.

Developing and Issuing Strategies, Plans, Programs, Projects, and Initiatives

At the central level, the government, ministries, and sectors have issued many important strategic and directional documents, creating a legal and policy framework for adaptation to climate change. National strategies on green growth, natural disaster prevention, forestry development, irrigation, and especially the National Strategy on Climate Change for the period up to 2050 have set long-term goals and tasks for adaptation to climate change. National action plans and specific programs and projects have also been implemented to implement CCA goals in different areas. The MAE has issued a plan to implement a project to improve the capacity of agricultural cooperatives in the Mekong Delta to adapt to climate change.[8] The Ministry of Public Security has also issued a plan to respond to the consequences of typhoons and floods.

At the local level, most provinces and cities have proactively issued climate change response plans based on the NAP, the latest Climate Change and Sea Level Rise Scenario in Viet Nam (in 2020 from MONRE) and considered the local and regional context.

[4] Decree No. 08/2022/ND-CP dated January 10, 2022 [11].
[5] Decision No. 896/QD-TTg dated July 26, 2022.
[6] Circular No. 01/2022/TT-BTNMT dated January 7, 2022, detailing the implementation of the Law on Environmental Protection.
[7] Circular No. 06/2023/TT-BTNMT dated July 31, 2023.
[8] Decision No. 854/QĐ-TTg dated July 29, 2022 [30].

Table 5. Examples of local plans based on NAP and climate change scenarios for development

Document no.	Date of issue	Issuing authority	Key sectors
Plan No. 4277/KH-UBND [46]	September 1, 2020	People's Committee of Binh Duong province	Focusing on the health sector
Plan No. 234/KH-UBND [44]	September 29, 2020	People's Committee of Hai Phong city	Water resources; infrastructure; public health, labour – society, culture, sports, tourism
Plan No. 3891/KH-UBND [47]	October 7, 2020	People's Committee of Binh Thuan province	Strengthening state management and resources; agriculture; natural disaster prevention; environment and biodiversity
Plan No. 2922/KH-UBND [49]	November 23, 2020	People's Committee of Tay Ninh province	Strengthening state management and resources; agriculture; natural disaster prevention; environment and biodiversity; water resources; infrastructure; public health; labour – society; culture, sports, tourism
Plan No. 38/KH-UBND [48]	February 1, 2021	People's Committee of Lao Cai province	Water resources; agriculture
Decision No. 1866/QD-UBND [45]	October 5, 2022	People's Committee of Bac Kan province	Focusing on agricultural and forestry production

Source: Reports from provinces

Localities have reviewed and adjusted land-use planning, urban planning, and other sectoral planning to integrate CCA solutions, such as urban drainage planning that considers flooding due to climate change. In addition, some localities have implemented specific projects and tasks related to adaptation, such as urban flooding mitigation (Kien Giang, Tra Vinh), water resource management (Ha Giang), and natural disaster prevention (Quang Binh). Notably, all 63 provinces, as well as cities, across the country have completed the approval of socio-economic development plans for the 2021–2030 period, with a vision to 2050, taking into account climate change factors. The provincial and city-level planning must analyze, assess, and forecast the risks and impacts of natural disasters and climate change in order to propose key tasks and scenarios, as well as solutions for disaster prevention and climate change response.

These efforts demonstrate a strong commitment at both central and local levels to integrate national climate change goals into concrete strategies, plans, and implementation initiatives, effectively embedding CCA into Viet Nam's socio-economic development process. At the same time, these endeavours have laid a crucial foundation for building the nation's climate change resilience.

Developing and Issuing National Standards, Technical Regulations, Guidelines, and Technical Instructions

Ministries, sectors, and localities have also issued technical standards and regulations to strongly promote CCA activities. The coordination with all levels and sectors has created a system of diverse and comprehensive regulations and guidelines that aim to cover/adjust activities in many different areas of socio-economic life considering the context of climate change.

At the central level, the MAE has focused on specifying legal regulations through issuing many guiding circulars while promulgating National Technical Regulations for the livestock and aquaculture sectors. In addition, the ministry has also proactively developed mechanisms and policies to support sustainable agricultural development and enhance the sector's adaptive capacity to climate change and the sector's M&E system as demonstrated, as well as guidelines for assessing risks and vulnerabilities due to climate change.[9]

Similarly, the MOC has issued circulars regulating environmentally friendly construction materials, urban construction standards, and guidelines for housing support for the poor to prevent natural disasters. The ministry also advises the government on urban development and housing programs adapted to climate change. In addition, the MOC has developed, reviewed, and completed the technical requirements of the industry, taking into account climate change factors such as the National Technical Regulations on Construction Planning (QCVN 01:2021/BXD)[10] and the National Technical Regulations on Urban Infrastructure Technical Systems (QCVN 07:2023/BXD).[11]

In the field of transportation, the MOC has issued a circular on the system of sectoral statistical indicators and developed technical standards for transport infrastructure, ensuring resilience to the negative impacts of climate change. National standards, such as standards on seaports (QCVN 107:2021/BGTVT)[12] and standards on maritime infrastructure (TCVN 11820-5:2021), are typical examples of this effort.

The Ministry of Science and Technology also contributed to the legal framework by promulgating 18 national standards related to climate change responses, mostly based on international standards, focusing on aspects such as the use of sustainable materials and applications in agriculture and construction.

To ensure financial resources for CCA activities, the MOF has issued legal documents regulating investment and budget expenditures for environmental protection activities and climate change responses at both central and local levels.

The Ministry of Health has also issued an M&E system for the sector, along with guidelines for assessing climate change risks to public health.

The MAE plays a key role in guiding the implementation of the Law on Environmental Protection in the context of climate change through important decisions and circulars. The documents include the

[9] Decision No. 3442/QD-BNN-KH dated September 12, 2022 [2].
[10] Circular No. 01/2021/TT-BXD dated May 19, 2021 [7].
[11] Circular No. 15/2023/TT-BXD dated December 29, 2023 [8].
[12] Circular No. 08/2021/TT-BGTVT dated April 19, 2021 [1].

development of a national adaptation M&E system and guidance on integrating climate change responses into socio-economic development strategies and plans.

In parallel with the efforts of ministries and sectors at the central level, provinces have also proactively and actively implemented the development and promulgation of standards, technical regulations, and guidelines related to climate change. The main goals are to ensure consistency, improve the effectiveness of response activities, and ensure suitability to the context of each region. Provinces and cities have focused on reviewing, supplementing and developing new technical regulations, creating an important legal and technical basis for implementing CCA and risk reduction measures.

In coastal provinces that are heavily affected by saline water intrusion and rising sea levels, such as Soc Trang and Long An, adjusting coastal land management and use standards has become a top priority. These localities have also developed detailed technical guidelines for dredging canals and building dykes to protect agricultural production and people's livelihoods. Meanwhile, some provinces, such as Quang Binh and Lao Cai, focus on updating technical standards for infrastructure systems like urban drainage to cope with increasing flooding or issuing regulations on infrastructure construction in areas at high risk of landslides to minimize damage.

Provinces with developed industrial parks, typically Dong Nai, have proactively developed technical standards for industrial park development, integrating criteria for adaptation to climate change, including requirements for advanced wastewater treatment systems, green spaces, and infrastructure that can withstand extreme weather conditions.

Some provinces have promulgated specific technical standards and regulations for climate change responses. Dak Nong province has developed local technical regulations on the quality of clean water for domestic use, ensuring safe water sources for people.[13] Similarly, Nam Dinh province focuses on perfecting the technical process of nursery and seed production and building a pilot model of mixed planting of the Sonneratia species on coastal alluvial plains and applied a nature-based adaptive solution.

Overall, the development and issuance of a system of national standards, technical regulations, guidelines, and instructions by ministries, sectors, and localities represent a significant effort to strengthen the technical and legal foundation for CCA in Viet Nam. These regulations have spanned sectors, such as agriculture, construction, transport, and health, which provide essential frameworks and specific requirements to integrate climate resilience into socio-economic activities. While central agencies establish overarching national standards and guidelines, provinces and cities have proactively developed local regulations tailored to their unique geographical and socio-economic characteristics, such as addressing saline intrusion in coastal areas or managing infrastructure in flood-prone or landslide-risk regions. This approach ensures that CCA measures align with national directives while remaining practical and effective locally, providing a critical technical basis for implementing climate risk reduction measures and promoting sustainable development amid a changing climate.

[13] Decision No. 34/2023/QD-UBND dated December 8, 2023.

Developing Climate Change Adaptation Reports

Ministries, sectors, and provinces nationwide have actively developed CCA reports to comprehensively assess the current situation, forecast impacts, and propose CCA solutions suitable to the characteristics of each sector and region.

At the central level, the MAE has chaired and directed the development of a national report on adaptation of climate change, ensuring compliance with international commitments such as the UNFCCC and the Paris Agreement. The ministry has completed the report on the 2020 NDC, the 2022 NDC update report, and the *Biennial Update Report*. The documents focus on ecosystem-based CCA solutions, community capacity building, and green transformation in key sectors and areas.

The MAE has focused on assessing the impacts of climate change on agriculture, irrigation, and forest resources. The ministry's reports propose sustainable agricultural models, such as crop restructuring, developing drought- and salt-tolerant varieties, and implementing water resource management measures in line with climate change scenarios. Similarly, the MOC has assessed the impacts of climate change on transport infrastructure, recommending design standards for infrastructure to increase its resilience to typhoons, rising sea levels, and increasing temperatures.

At the local level, provinces have proactively developed climate change risk assessment reports, focusing on specific risks in each region. The Mekong Delta provinces (Tra Vinh, Long An, Soc Trang, Vinh Long) have completed risk assessment reports focusing on natural disasters such as saltwater intrusion, floods and droughts. These reports propose solutions, including improving infrastructure, managing water resources, and integrating response measures into socio-economic development plans.

The development of CCA reports not only reflects the proactiveness and efforts of ministries, sectors, and localities but also provides important data for policy-making, resource allocation, and the development of specific action programs.

In conclusion, the systematic development of CCA reports by ministries, sectors, and provinces is a vital component of Viet Nam's state management of climate change. These reports, which range from national submissions to international bodies like the UNFCCC to detailed local risk assessments, are essential tools for understanding current vulnerabilities, projecting future climate impacts, and developing effective CCA strategies. The efforts of ministries, such as the MAE and the MOC, in producing comprehensive sectoral reports, combined with provinces' proactive development of region-specific assessments, reflect a unified national effort to collect vital data and analysis. Ultimately, these reports not only demonstrate the commitment and actions taken at various levels but also provide the foundational information needed for evidence-based policy-making, efficient resource allocation, and the successful implementation of adaptation programs to enhance resilience against climate change impacts throughout Viet Nam.

Mainstreaming Climate Change Adaptation into Strategies, Plans, and Policies

Article 93 of the Law on Environmental Protection 2020 stipulates that socio-economic development planning, sectoral planning, national defence and security strategies must incorporate CCA goals [13].

To specify this requirement, Circular No. 06/2023/TT-BTNMT dated July 31, 2023, provided guidelines for integrating climate change response into strategies and planning.[14] Although the circular has achieved notable results in promoting the integration of climate change response goals, the level of implementation and effectiveness still vary across regions and sectors. This inconsistency reflects the challenges of applying uniform guidelines in different local and sectoral contexts.

At the central level, socio-economic development strategies, as well as sectoral development strategies, have integrated and included CCA contents. Typically, the Strategy for Sustainable Agricultural and Rural Development for the 2021–2030 period, with a vision to 2050[15]; the National Strategy on protecting, caring for and improving people's health until 2030, with a vision to 2045[16]; and the Construction Industry Development Strategy until 2030, with a vision to 2045[17]; all set out goals and tasks related to climate change response. In addition, important plans such as the Mekong Delta Regional Plan for the 2021–2030 period, with a vision to 2050[18]; the Northern Midlands and Mountainous Region Plan for the 2021–2030 period, with a vision to 2050[19]; the North Central and Central Coastal Region Plan for the 2021–2030 period, with a vision to 2050[20] and the Seaport and Airport System Development Plan,[21] the master plan for the development of the national airport and seaport system for the 2021–2030 period, with a vision to 2050[22] have also incorporated CCA contents.

Climate change issues are also integrated into the viewpoints, goals, and tasks of many sectoral development plans, such as transport, agriculture, irrigation, forestry, industry and trade, construction, urban areas, housing, and health. The integration methods vary by sector.

In the transport sector, the MOC has integrated adaptation into plans for developing road, sea, and railway infrastructure by incorporating measures to enhance the resilience of infrastructure to climate-related hazards. For instance, to increase resilience to extreme weather events like storms and floods, infrastructure design needs to account for sea level rise in coastal areas while using materials and construction techniques that are better able to adapt to rising temperatures. The ministry also guides localities to review and update transport project designs in accordance with climate scenarios.

The MAE has integrated CCA into plans for developing agriculture, irrigation, and forestry to ensure sustainable production. This involves promoting climate-resilient crop varieties and farming techniques, improving irrigation efficiency in the face of changing water availability, and incorporating climate considerations into forest management and protection strategies.

The MOC has incorporated this adaptation content into urban planning, focusing on drainage systems, rainwater treatment, and urban flood prevention; planning for increased flood frequency and

[14] Circular No. 06/2023/TT-BTNMT dated July 31, 2023 [5].
[15] Decision No. 150/QD-TTg dated January 28, 2022 [21].
[16] Decision No. 89/QD-TTg dated January 23, 2024 [22].
[17] Decision No. 179/QD-TTg dated February 16, 2024 [23].
[18] Decision No. 287 dated February 28, 2022 [24].
[19] Planning No. 369/QD-TTg dated May 4, 2024 [25].
[20] Decision No. 376/QD-TTg dated May 4, 2024 [26].
[21] Decision No. 1579/QD-TTg dated September 22, 2021 [27]; amending and supplementing a number of contents in Decision No. 422/QD-TTg dated May 22, 2024 [28].
[22] Decision No. 648/QD-TTg dated June 7, 2023 [29].

intensity; developing sustainable urban drainage solutions; and considering the urban heat island effect.

In the health sector, the Ministry of Health has integrated climate change response measures into the health system development plan, especially disease prevention and public health protection. It is anticipating changes in disease patterns due to climate change and strengthening the capacity of the health system to respond to climate-related health impacts.

At the local level, provinces and cities across the country have actively integrated CCA into socio-economic development plans. This integration is carried out through the national Socio-Economic Development Plan for the 2021–2030 period, with a vision to 2050. All 63 provinces and cities must develop their implementation plans as part of the national Socio-Economic Development Plan, ensuring that CCA is not just additional content but becomes an important part of the development orientation of each locality.

Provinces have integrated adaptation into master socio-economic development plans, urban plans, land-use plans, and infrastructure and drainage development plans. Hau Giang province has incorporated climate change considerations into its provincial master plan and sectoral development strategies.[23] by focusing on timely forecasting and warnings of natural disasters and climate change, ensuring infrastructure's adaptive capacity, and investing in hydraulic works to cope with drought, salinity intrusion, flooding, and erosion. Can Tho city has integrated solutions to respond to climate change and rising sea levels into the city's master plan for 2030, with a vision to 2050.[24] This work includes planning for infrastructure resilient to sea level rise and saltwater intrusion. Phu Tho has included climate change response into land-use planning and crop and livestock structures. Long An focuses on climate impact assessment and ensuring local authorities effectively implement adaptation measures.[25]

In conclusion, mainstreaming CCA into strategies, plans, and policies is a cornerstone of Viet Nam's state management of climate change, strongly supported by its legal framework, particularly the Law on Environmental Protection 2020 and Circular No. 06/2023/TT-BTNMT. This process marks a critical shift from treating climate change as a standalone issue to embedding climate risks and adaptation needs directly into the core objectives and implementation measures of development planning across all levels and sectors. While the depth and effectiveness of this integration vary, significant progress has been achieved. At the national level, key strategies and sectoral plans in areas such as agriculture, transport, construction, and health now incorporate climate adaptation goals and tasks. Likewise, provinces and cities nationwide have actively integrated climate change considerations into their socio-economic development plans and specific local initiatives. This effort to mainstream adaptation is essential to ensuring an increase in resilience to the growing impacts of climate change.

[23] Decision No. 1588/QD-TTg dated December 8, 2023 [30] and Decision No. 556/QD-TTg dated June 22, 2024 [31].
[24] Decision No. 1519/QD-TTg dated December 2, 2023 [32].
[25] Decision No. 686/QD-TTg dated June 13, 2023 [33].

Strengthening Organizational Structures and Human Resources for Climate Change Responses

The improvement of the organizational structure and human resources for climate change response has been gradually implemented by ministries and localities to improve the effectiveness of implementing climate change response goals.

At the central level, ministries and sectors have made critical steps in strengthening the apparatuses and human resources specialized in climate change. Activities undertaken by ministries and sectors to strengthen capacities and skills include establishing specialized units and departments focused on climate change, such as the DCC at the MAE, tasked with coordinating, guiding, and monitoring the implementation of policies related to climate change at the national level (including CCA activities). Other ministries and sectors, such as the MARD and the MOC, have also focused on building and improving specialized units and departments on climate change in their organizational structures.

Furthermore, ministries have concentrated on developing highly skilled human resources through various initiatives. Specialized training programs and workshops have been conducted to equip officials with knowledge on forecasting, climate change risk assessment, and CCA scenario development. Awareness-raising workshops have also been organized to enhance understanding of climate change challenges and the importance of response measures across different sectors. Crucially, efforts have been made to develop guidance documents and frameworks for the effective implementation of climate change strategies and the integration of climate change considerations into sectoral planning and operations. The MOST, in collaboration with international organizations, has organized numerous technical training sessions for sectoral staff, emphasizing the application of advanced technologies in climate monitoring and data processing.

At the local level, many provinces and cities (Ha Noi, Ho Chi Minh City, Soc Trang, Hau Giang, Can Tho, Binh Duong, Dong Nai, Ben Tre, An Giang, and Khanh Hoa) have proactively established or improved Steering Committees/Working Groups on Climate Change under provincial People's Committees with the main goal of enhancing coordination between departments, branches, and sectors in implementing adaptation tasks. Some provinces (Soc Trang and Hau Giang) have established specialized units on climate change under the Department of Natural Resources and Environment that focus on integrating climate change factors into local socio-economic development planning and plans. In addition, localities also focus on developing training programs and raising awareness and capacity for officials at all levels on issues related to CCA.

In addition to strengthening the organizational structures, the development of highly skilled people working in CCA is also considered important. Ministries, sectors, and localities have implemented specialized training programs that focus on knowledge and skills in climate risk assessment, applying advanced technologies in monitoring and managing the impacts of climate change, and developing and implementing CCA measures. Cooperation with international organizations, research institutes, and universities has also been promoted to improve the professional qualifications of officials.

However, the improvement of organization and human resources for CCA still differs between provinces. Provinces with developed economic conditions often have advantages in terms of resources and facilities compared to mountainous provinces or remote areas. This requires stronger attention and support from the central government, not only in terms of finance but also in sharing experience and professional guidance to improve organization and human resources.

In conclusion, both central ministries and local authorities have established specialized units and departments dedicated to climate change within their structures to implement state management of climate change. Additionally, the development of high-quality human resources was implemented through targeted training programs, workshops, and awareness-raising activities. These programs were designed to equip officials with the knowledge and skills needed for effective climate change risk assessment, adaptation planning, and implementation. Although considerable results have been achieved, as demonstrated by the establishment of dedicated units and training initiatives at various levels, disparities in capacity and resources persist among provinces and cities. Enhancing coordination and experience-sharing among ministries, sectors, and localities is crucial to increasing Viet Nam's resilience to the impacts of climate change.

Summary

State management of climate change in Viet Nam adopts a multifaceted approach, encompassing the enhancement of institutional and policy frameworks; the development and issuance of strategies, plans, programs, and projects; the establishment of national standards, technical regulations, guidelines, and instructions; the development of CCA reports; and the integration of CCA into strategies, plans, and policies.

These efforts are implemented at both the central and local levels, guided by the Law on Environmental Protection 2020 and the National Strategy on Climate Change to 2050. Ministries and provinces have actively developed detailed regulations; incorporated adaptation into sectoral and local planning; issued technical standards for fields such as agriculture, construction, transportation, and health; and produced reports to assess impacts and monitor progress. A critical component is strengthening organizational structures and human resources by establishing specialized units and providing training.

Despite this progress, state management of climate change faces several barriers and challenges. At the policy and legal levels, limitations remain, as some policies fail to fully facilitate comprehensive resource mobilization or promote proactive intersectoral and inter-regional coordination, with certain regulations disconnected from practical realities. At the central level, policies have not created favourable conditions for comprehensive mobilization of resources and have not highlighted proactive coordination between sectors and fields because legal documents in ministries mainly deploy/adjust activities in specialized fields. In addition, some policies are not close to reality, and there is a lack of regulations on intersectoral and inter-regional coordination. At the local level, attention is not uniform. There is still overlap between activities and approved plans and programs, but resources for implementation have not been ensured. Coordination between sectors and localities is not yet effective.

3.2.2 Enhancing Resilience and Adaptation Capacities in Key Sectors

Agriculture, Forestry, and Fisheries

In the agricultural sector, many localities have proactively restructured crops and livestock, switching to varieties that are more resistant to extreme weather conditions, such as drought and saltwater intrusion. Ben Tre has applied a practical model, developing green-skinned grapefruit varieties with salt-tolerant rootstocks that adapt to climate change. Khanh Hoa province has converted hundreds of hectares of inefficient rice-growing land to grow vegetables, beans, lotus, potatoes, and other annual and perennial crops with higher economic efficiency. In some provinces, the application of advanced

farming techniques, such as water-saving irrigation and integrated pest management, has also been widely applied, helping to increase productivity and minimize risks caused by climate change. In Ninh Thuan, known for its frequent and severe droughts, water-saving irrigation techniques and the use of drought-resistant crop varieties have been applied in grape and apple cultivation. An Giang province applies advanced technology in production activities such as growing melons and growing vegetables in greenhouses and net houses; automatic sprinkler irrigation systems combined with pesticide spraying; water circulation systems in livestock farming; and farming according to standards, especially applying digital transformation in agriculture. Bac Kan province promotes the application of production according to VietGAP standards or their equivalent for many types of crops. Similarly, Soc Trang province has focused on introducing salt-tolerant crop varieties and climate-resilient livestock to boost productivity and ensure local livelihoods amid saline intrusion. Dong Nai province prioritizes food security by widely cultivating drought- and flood-resistant crops, such as salt-tolerant rice and hybrid maize, enabling farmers to adapt to changing climatic conditions.

In addition, investment in upgrading and building new irrigation infrastructure to ensure a stable source of irrigation water has also been a focus, especially in the context of climate change, increasing drought and saltwater intrusion. Some localities have implemented projects to build reservoirs, canal systems, and water regulation sluices to proactively respond to climate change scenarios. In Soc Trang province, irrigation projects have protected more than 15,000 ha of agricultural land from saltwater intrusion, providing stable livelihoods for thousands of households. Ninh Thuan province has stored more than 300 million m3 of water through a series of upgraded and newly constructed reservoirs, which mitigate water shortages during the dry season and protect nearly 20,000 ha of agricultural land. Similarly, Ninh Binh is implementing the Kim Dai Dam Construction Project to prevent saltwater intrusion, retain fresh water, and respond to rising sea levels.

Forest protection and development has also been a focus, not only for its protective role but also to contribute to minimizing the impact of climate change. Localities have strengthened the management and protection of natural forests while promoting afforestation and forest restoration, especially coastal mangrove forests that can prevent erosion and rising sea levels.

In the field of aquaculture, localities have shifted to farming species with high economic value and better adaptability to changing environmental conditions, such as shrimp and marine fish. Farming methods have also been gradually modernized, shifting from extensive to semi-intensive, intensive, and high-tech farming, helping to minimize negative impacts on the environment and improve production efficiency. In Nam Dinh province, the farming objects have shifted to shrimp, clams, and marine fish with advanced farming methods, forming concentrated farming areas and linkage chains. In particular, high-tech white-leg shrimp farming models applying environmental management measures were carried out. Dong Nai province has converted aquaculture activities from traditional farming methods to modern intensive farming methods, such as closed-loop aquaculture systems. These systems have reportedly reduced water waste by 30% compared to traditional methods, producing cleaner and more sustainable aquatic products, thereby minimizing environmental impacts.

Overall, enhancing resilience and adaptation capacity to climate change in agriculture, forestry, and fisheries has achieved some results. However, the extent and effectiveness of adaptation activities vary between localities, depending on natural conditions, socio-economic conditions, and access to resources. Some provinces have achieved encouraging results thanks to their proactiveness, creativity, and systematic investment, while other localities still face many difficulties in implementing effective adaptation solutions.

Environment and Biodiversity

In coastal provinces, the protection and development of mangroves and protective forests have helped to minimize the impacts of rising sea levels, coastal erosion, and natural disasters. Khanh Hoa province has implemented a Coastal Forest Protection and Development Plan for the 2021–2025 period, with a vision to 2030, focusing on protecting existing forest areas, planting new protective forests, and restoring degraded forests. Similarly, Thai Binh has also strengthened the protection of existing coastal forest areas and planted new wave-breaking trees while establishing the Tien Hai Wetland Nature Reserve,[26] contributing to the protection of mangrove ecosystems and migratory birds.

Mountainous provinces pay attention to sustainable forest management and development, as well as biodiversity conservation. Yen Bai province has achieved positive results in forest planting and certification, like organic cinnamon certification, which contributes to increasing the economic value of forests and promoting sustainable forest management. Quang Tri province has cooperated with international organizations to implement sustainable forest management and biodiversity conservation programs and approved the provincial Biodiversity Action Plan. Dak Nong, with its nature reserves and national parks, has implemented sustainable forest management plans, focusing on surveying and conserving rare flora and fauna species.

In addition, localities are also interested in conserving wetland ecosystems and developing sustainable livelihood models associated with environmental protection. Typically, Son La has effectively implemented payments for forest environmental services, creating financial resources for forest protection and development while promoting reforestation activities.

In conclusion, efforts in the field of environment and biodiversity are fundamental to Viet Nam's CCA policies, emphasizing the critical role of natural ecosystems in mitigating impacts and providing essential services. Provinces across the country are actively engaged in protecting and developing these valuable resources, tailoring their approaches to local conditions. Coastal regions prioritize the conservation and expansion of mangroves and protective forests to build resilience against sea level rise and coastal erosion, as demonstrated by initiatives in Khanh Hoa and Thai Binh. Meanwhile, mountainous provinces focus on sustainable forest management, reforestation, and biodiversity conservation to enhance ecosystem health and stability, with examples from Yen Bai, Quang Tri, and Dak Nong. Innovative mechanisms, such as payments for forest environmental services implemented in Son La, ensure the financial sustainability of these conservation efforts. These concerted actions highlight the recognition that healthy and diverse ecosystems are indispensable natural defences and crucial assets in Viet Nam's broader efforts to adapt to a changing climate.

Water Resources

At the central level, ministries and sectors play an important role in developing policies, planning, and implementing solutions to adapt to climate change in the water resources sector. In particular, the MAE is in charge of developing a policy framework and master plan, including the National Water Resources Planning for 2021–2030, with a vision to 2050 [34], and water resources protection initiatives, such as establishing protection corridors in major river basins and upgrading water monitoring systems. In the Mekong Delta, fixed salinity measurement equipment was deployed to

[26] Decision No. 1357/QD-UBND dated August 20, 2024 [50].

support provinces like Soc Trang and Long An. The MAE focuses on developing irrigation infrastructure to minimize the impacts of drought and saltwater intrusion through projects like the construction and upgrading of reservoirs in Ninh Thuan (Tan Giang and Song Sat), which ensure stable irrigation, and by promoting crop restructuring to use less water. The Ministry of Industry and Trade promotes wastewater treatment technology and integrates water resources management into the energy development strategy, where large hydropower projects also contribute to water regulation, flood mitigation, and freshwater supply, alongside promoting research on wastewater treatment and water recycling technologies in industrial zones. The MOST supports research and application of advanced technology such as drip irrigation, wastewater reuse in agriculture, and rainwater harvesting, particularly in vulnerable areas like Ninh Thuan and the Mekong Delta. The MOC has integrated CCA into urban development plans and designed drainage and surface water treatment systems suitable for heavy rainfall and sea level rise scenarios. An example is urban drainage systems in Dong Nai, which have been designed to meet flood prevention standards.

At the local level, provinces and cities have implemented many solutions to adapt to climate change, focusing on water resource management, drought prevention, saltwater intrusion, and flood control. Many provinces have invested in building and upgrading reservoir systems, pumping stations, river embankments, and water supply and storage works to ensure water sources for production and daily life. In Ninh Thuan, reservoirs like Song Sat and Tan Giang have upgraded to protect over 20,000 ha of cultivated land. Water-saving irrigation models and flexible regulation of water resources have also been applied to improve water use efficiency, especially in areas severely affected by drought and saltwater intrusion. In the Mekong Delta, provinces like Soc Trang and Long An prioritize integrated water resource management to minimize the impact of rising sea levels through canal systems, regulating sluice gates, and anti-saltwater intrusion works. Soc Trang has implemented projects to dredge canals and construct water regulation gates, protecting tens of thousands of hectares, while Long An has invested in numerous anti-saline embankments along key rivers like Vam Co Tay and Vam Co Dong, ensuring both irrigation and domestic water supply. Some localities have experimented with underground water storage, while others that frequently experience flooding, such as Quang Nam in the Central Region, have focused on comprehensive flood control and drainage infrastructure, including the Vu Gia–Thu Bon Emergency Flood Management Project and multipurpose reservoirs like Phu Ninh to cope with increasing flooding.

In conclusion, the management of water resources is a critical area for CCA in Viet Nam, with concerted efforts being made at both the central and local levels. The MAE, Ministry of Industry and Trade, MOST, and MOC are instrumental in establishing the necessary policies to develop infrastructure, promoting water-related technologies, and supporting relevant research. At the local level, provinces and cities are investing in water infrastructure, applying efficient water-saving practices, and adopting integrated water resource management approaches, particularly in highly vulnerable regions like the Mekong Delta. The combined actions of developing policies, investing in infrastructure, applying new techniques, and fostering integrated management demonstrate a strong commitment to ensuring water security and enhancing the resilience of the water sector against the adverse impacts of climate change.

Transportation

At the central level, the MOC plays an important role in development, promulgating technical standards, and supporting localities in implementing CCA programs. The ministry has issued guidelines for the design and construction of transport works suitable for climate change scenarios while

promoting research and the application of new technologies. Porous asphalt concrete technology on national highways was applied in the Central and Southern regions, which helps reduce flooding during the rainy season. In addition, the ministry has also invested in and completed key transport projects, especially expressways and railway upgrade projects in vulnerable areas, to develop and enhance the resilience of the national transport network. Projects implemented under the ministry's direction in vulnerable areas, particularly the Mekong Delta, Highland, and Northern mountainous provinces, now incorporate climate change scenarios (increased rainfall and sea level rise) in their designs, using updated hydrological calculations and hydraulic modelling to enhance resilience.

At the provincial level, many provinces and cities have proactively implemented specific adaptation solutions appropriate to their level of vulnerability to climate change. The focus of adaptation solutions includes upgrading, renovating, and building new transport infrastructure to ensure safety and operability in extreme weather conditions. Dong Nai province has invested in upgrading its road network, with major roads redesigned to withstand flooding and enhance drainage capacity during the rainy season. Some provinces in the Mekong Delta (e.g., Tra Vinh) have focused on upgrading roads and building anti-salt embankments to protect infrastructure from saltwater intrusion. In Long An, a project on the Vam Co Tay River from Rach Chanh to the new bypass bridge in Tan An City is designed to both protect critical transportation routes from saline intrusion and mitigate landslide risks to ensure safety for road users, contributing to the protection of nearby agricultural land. The northern mountainous provinces have focused on reinforcing roads, preventing landslides, and ensuring traffic connectivity during the rainy season.

Infrastructure maintenance and repair are also prioritized to improve the resilience of existing structures. Road maintenance, especially in areas at high risk of natural disasters, is carried out to maintain technical standards and ensure traffic safety in extreme weather conditions. This is a particular focus in provinces like Ninh Thuan, which prioritizes maintaining its roads to meet technical and safety standards under harsh conditions. Some localities have also piloted the application of new construction technologies and materials, such as porous asphalt concrete, which helps increase drainage capacity and reduce the risk of flooding. Disaster prevention measures, including regular maintenance of drainage systems and bridge abutments, reviewing and developing safety plans for high-risk areas, and timely preparation of response resources based on the "4 On-Site" principle, have proactively contributed to minimizing damage from natural disasters. Plans to ensure traffic flow and safety during and after events have been developed and implemented.

Besides protecting infrastructure, some provinces and cities like Dong Nai also focus on controlling emissions from vehicles and promoting sustainable transport models. In 2022, Dong Nai inspected over 10,000 vehicles, achieving a compliance rate of more than 95% and contributing to reduced air pollution. Similarly, Ninh Thuan province has piloted the use of electric vehicles, promoted green transportation, and conducted comprehensive technical and emissions inspections, which increased the proportion of vehicles meeting emission standards to 92% in the past year. Solutions such as encouraging the use of environmentally friendly vehicles, implementing green public transport systems, and developing infrastructure for electric vehicles, are being tested and gradually expanded. Strengthening climate monitoring and observation capacity has also progressed, with the operationalization of automatic meteorological information broadcasting systems and the upgrade of observation stations at key locations, aiding timely responses to climate-related hazards.

In conclusion, Viet Nam's transportation sector has made significant progress in enhancing its resilience and adaptability to climate change through a comprehensive approach involving both

central and local authorities. These efforts include upgrading and reinforcing infrastructure in vulnerable areas based on climate change scenarios, implementing disaster prevention and response measures, investing in advanced monitoring and observation systems, piloting innovative technologies and materials, and promoting sustainable transport models. These proactive measures underscore the sector's commitment to minimizing damage and ensuring the continuity and sustainability of transport operations in the face of a changing climate.

Urban Development and Construction

At the central level, the MOC has issued technical regulations and guidelines. The Viet Nam Urban Infrastructure Technical Regulation (QCVN 07:2020/BXD) [8] is a typical example, requiring infrastructure projects to consider climate change factors. The ministry has also implemented pilot projects, such as the sustainable drainage project in Quang Binh, which helps to reduce flooding for more than 10,000 people during the rainy season.

At the local level, adaptation solutions focus on upgrading drainage systems, improving urban infrastructure, and integrating climate change factors into planning. Dong Nai province has invested over VND 200 billion in Bien Hoa city to mitigate urban flooding and requires new urban construction projects to comply with climate change resilience standards. Ninh Thuan has evaluated urban projects to align with sea level rise and climate change scenarios, designing initiatives like the Binh Son coastal resettlement with elevated ground levels and upgraded drainage, and encourages the use of sustainable and energy-efficient materials. Can Tho has implemented numerous projects to build and renovate drainage systems in districts like Ninh Kieu and Binh Thuy to address flooding, integrate climate change factors into urban planning, and apply technologies like smart drainage systems. Ho Chi Minh City has carried out big projects, such as the tidal flood control project (costing nearly VND 10 trillion), and adopted green solutions like constructing rainwater retention basins. Ha Noi has focused on upgrading the drainage system, renovating regulating lakes, and integrating CCA into urban development planning, requiring green and energy-efficient buildings. Ha Tinh has incorporated CCA measures into urban development planning, focusing on drainage and flood control solutions, such as constructing major drainage routes in its city. While localities like Dong Nai and Ho Chi Minh City have demonstrated the capacity to implement larger projects, provinces such as Ha Tinh and Ninh Thuan often prioritize approaches suitable to their specific conditions, focusing on long-term effectiveness within available resources. In general, localities have shifted from short-term solutions to sustainable adaptation strategies in which flexible and resilient urban planning is becoming the mainstream trend.

In conclusion, the urban development and construction sector in Viet Nam has made strides in enhancing resilience and adaptation to climate change. At both the central and local levels, the MOC has provided a framework by issuing technical regulations implementing pilot initiatives. In addition, provinces and cities have invested in upgrading drainage systems, improving urban infrastructure, and integrating climate change considerations into their planning processes. Large-scale projects in Ho Chi Minh City, Hanoi, and Can Tho and suitable solutions in Ha Tinh and Ninh Binh have shown these transformations. Flexible and resilient adaptation strategies support climate-resilient cities and minimize the impacts of a changing climate on urban populations and infrastructure.

Industry, Commerce, and Services

At the central level, the Ministry of Industry and Trade implements policies and action programs to respond to climate change, focusing on promoting the development of renewable energy and efficient use of energy and reducing GHG emissions in the industrial and commercial sectors. Pilot projects

applying energy-saving technology and energy-labelling programs have shown positive results, helping businesses save energy and reduce carbon dioxide (CO_2) emissions. According to the ministry's statistics, in 2022, businesses participating in energy-saving programs saved approximately 2 billion kWh of electricity, equivalent to reducing over 1 million tonnes of CO_2 emissions.

At the local level, many provinces and cities have proactively implemented adaptive solutions to balance economic development and environmental protection, in accordance with the natural conditions and economic characteristics of each region. Dong Nai monitors and manages wastewater treatment in industrial parks, with all 31 industrial parks equipped with centralized facilities utilizing advanced technologies, treating over 150,000 m^3 of wastewater daily in 2022. Ninh Thuan has become a significant renewable energy hub with over 2,000 MW of solar and wind capacity, contributing to reducing GHG emissions. Tra Vinh has encouraged investment in solar energy, mobilizing over VND 1,500 billion in 2022 for projects that alleviate electricity pressure and increase energy system resilience. Can Tho has invested in energy-saving solutions and developed green industrial zones to reduce CO_2 emissions and improve resource efficiency. Ha Noi is developing green industrial parks and low-emission zones while applying advanced technologies to reduce emissions, while Ho Chi Minh City promotes clean energy use in commercial buildings and service centres.

In conclusion, Viet Nam's industry, commerce, and services sectors have made significant efforts to enhance their resilience and adaptive capacity to climate change. These efforts include monitoring industrial activities, developing renewable energy sources, and promoting environmentally friendly technologies. The Ministry of Industry and Trade plays important role in finalizing policies and action programs to encourage energy efficiency and renewable energy development, with pilot projects in emission reductions. At the local level, provinces and cities have implemented solutions, such as developing clean energy, wastewater treatment, and fostering green industrial and commercial zones, which contribute to environmental protection and promote sustainable economic development in the face of climate change challenges.

Health and Public Health

At the central level, the Ministry of Health plays a primary role in coordinating national efforts, developing policies, and carrying out action plans to respond to climate change in the health sector. The ministry has established a national disease surveillance system, developing early-warning systems and providing technical support to localities. A typical activity is the replication of the "Green – Clean – Beautiful Health Station" model nationwide, aiming to improve the quality of health services while strengthening the health system's adaptive capacity to the impacts of climate change.

At the local level, provinces and cities have implemented many specific solutions suitable to the characteristics of each region. In mountainous provinces like Lao Cai, highland health stations have been equipped with basic medical devices, vaccination campaigns organized in remote areas, and training provided on preventing cold-weather-related diseases. In 2022, Lao Cai also provided clean water and improved sanitation for over 15,000 households, which reduces gastrointestinal diseases. Similarly, Son La has focused on building national standard health stations and implementing awareness programs on disease prevention, conducting over 50 environmental sanitation sessions, and strengthening disease surveillance in flood-prone areas. Ha Giang has implemented measures to protect residents in mountainous areas from cold weather and frost, organizing mobile health check-ups and allocating over VND 20 billion in 2022 to upgrade health stations and provide aid during winter. Thai Nguyen has applied modern technology to monitor and forecast diseases related to

climate change, developing an early-warning system and launching the "Green – Clean – Beautiful Health Station" model in 10 communes in 2022. This model has improved public health in Thai Nguyen by creating a clean health care environment, enhancing service quality, raising community awareness, and strengthening grassroots health care. These efforts not only meet primary health care needs but also contribute to promoting a sustainable lifestyle, reducing the burden on the health care system, and improving the quality of life for residents.

Provinces frequently affected by natural disasters, such as Quang Nam, Nghe An and Quang Ngai, have built mobile health stations and strengthened disease surveillance in vulnerable areas, ensuring the timely provision of medicines and medical supplies. Thua Thien Hue established early-warning systems for climate-related diseases and organized community awareness campaigns on environmental sanitation and disease prevention. Da Nang also developed real-time disease monitoring programs, issuing early warnings for climate-related illnesses, such as dengue fever and seasonal flu, and reducing the risk of disease outbreaks. Dong Nai and Tra Vinh provinces have focused on mobile health care and disease surveillance in vulnerable areas, while Ninh Thuan focuses on addressing health challenges from prolonged droughts. Mega cities such as Hanoi and Ho Chi Minh City have invested significantly in public health systems, conducted research on the impact of high temperatures and air pollution, built standard water supply and sanitation systems, and monitored disease in real time.

In conclusion, Viet Nam is working to enhance its resilience and adaptive capacity to climate change, particularly in response to the growing impact of climatic factors on the health sector. Solutions are being implemented synchronously from central to local levels, including through improving health care infrastructure, raising community awareness, and applying technology to monitor epidemics. The Ministry of Health is responsible for providing coordination and policy guidance, as well as supporting the expansion of models like the "Green – Clean – Beautiful Health Station." Some provinces and cities have implemented tailored solutions, ranging from providing basic medical support to adopting modern technology. These combined efforts contribute to building a more sustainable health system capable of addressing public health challenges posed by a changing climate.

Labour and Social Affairs

At the central level, the MOLISA (which has now been merged into the Ministry of Home Affairs) has actively implemented policies and programs to minimize the impacts of climate change on labour and society. These initiatives include vocational training projects for workers in heavily affected areas, such as in coastal and low-lying areas. In 2022, the ministry organized over 500 vocational training classes for rural workers to adapt to harsh climate conditions, contributing to local economic development. In addition, policies to support agricultural workers to transition to more sustainable occupations have also been promoted.

At the local level, provinces and cities have implemented solutions tailored to their specific characteristics and the degree of impact from climate change. The Central Highlands region, which often faces drought, has focused on training in sustainable agricultural occupations and water resource management techniques. In particular, Dak Lak has implemented vocational training programs in agriculture suited to arid climates and organized training on water-saving irrigation techniques, with over 5,000 rural workers participating in 2022. Gia Lai launched livelihood support programs, particularly for ethnic minority households through developing community-based tourism projects, with over 3,000 workers participating in these activities in 2022. The South Central Coast region focuses on vocational training linked to the marine economy and renewable energy. Khanh Hoa

encourages transitions to sustainable aquaculture and eco-friendly fishing, while Binh Thuan organizes training on solar energy use and energy-saving technologies. In the Mekong Delta, provinces like Ca Mau have implemented vocational training in brackish water aquaculture, such as sustainable shrimp and fish farming, while Kien Giang has carried out resettlement projects combined with vocational training for displaced workers. In 2022, over 4,000 households in these provinces received resettlement assistance and vocational training, significantly improving their quality of life. In the Northern region, Quang Ninh has vocational training programs supporting over 2,000 coal workers to transition to sustainable sectors like tourism, thereby enhancing economic resilience.

In conclusion, Viet Nam's labour and social affairs sectors are actively working to enhance resilience and adaptive capacity to climate change. These efforts, undertaken at both central and local levels, focus on protecting vulnerable populations and supporting sustainable livelihoods. The MOLISA implements policies and vocational training programs to help workers in affected areas adapt. Localities tailor their approaches to regional characteristics, such as promoting sustainable agriculture and water management in the Central Highlands, advancing the marine economy and renewable energy on the South Central Coast, developing saline aquaculture and resettlement in the Mekong Delta, and supporting occupational transitions in the Northern region. These actions contribute to mitigating the impacts of climate change and improving livelihoods.

Culture, Sports, and Tourism

At the central level, the Ministry of Culture, Sports and Tourism has issued and implemented many policies and plans to promote sustainable tourism, preserve cultural heritage, and develop sports models that adapt to changing climate conditions. The ministry has coordinated with localities to organize green tourism programs to minimize environmental impacts. In the field of sports, especially outdoor activities, safety measures to protect athletes that enable them to train and compete safely have been enhanced, and content on raising awareness about environmental protection and CCA has been integrated into sports programs.

At the local level, many provinces and cities have proactively implemented specific initiatives and adaptation models suitable to the characteristics and potential of each region. Ninh Thuan has issued a project on environmental protection in tourism, focusing on developing sustainable tourism according to green and energy-saving criteria. Quang Ninh promotes ecotourism in Ha Long Bay, invests in environmentally friendly tourism infrastructure, and raises awareness of heritage conservation. Vinh Phuc has reviewed and adjusted the planning of tourist areas to adapt to risks from climate change while encouraging green tourism models. Da Nang focuses on developing sustainable sea sports and training on disaster risk management for tourism businesses, such as using sports equipment made from recycled materials and organizing outdoor sports events that promote climate change awareness. Ho Chi Minh City combines economic development with environmental protection by promoting community tourism models associated with nature conservation. Central Highlands provinces, such as Gia Lai, Dak Lak, and Lam Dong, promote community tourism associated with cultural and ecological conservation, attracting tourists interested in green and sustainable tourism. In 2022, Lam Dong received over 5 million visitors, 60% of whom participated in ecotourism activities, raising community awareness about climate change.

In conclusion, Viet Nam's culture, sports, and tourism sector is working to enhance its resilience and adaptability to climate change through collaboration between ministries and localities. The Ministry of Culture, Sports, and Tourism provides policy guidance on sustainable tourism, heritage

preservation, and sports adaptation, while supporting green tourism initiatives. Provinces and cities are implementing tailored approaches, such as developing sustainable and ecotourism models, adjusting planning for tourist areas, managing disaster risks, adopting eco-friendly measures, and promoting community-based tourism linked to conservation. These efforts aim to contribute to mitigating environmental impacts, raising community awareness, and building resilience in the sector.

Summary

In conclusion, enhancing resilience and adaptive capacity across Viet Nam's key sectors involves a wide range of efforts by ministries, sectors, and localities. These efforts focus on adapting production systems, upgrading infrastructure, integrating climate change considerations into planning and design, promoting sustainable practices, improving monitoring and early-warning systems, and providing social support and vocational training. While these initiatives have made progress in addressing the impacts of climate change on agriculture, environment, water resources, transportation, urban development, industry, health, labour, and culture, the extent and effectiveness of adaptation vary across the country. Challenges persist, as adaptation activities differ between localities, often depending on natural conditions, socio-economic contexts, and resource availability. Disparities in resources, technical expertise, and implementation capacity persist among localities, with resource constraints limiting the ability of some areas to undertake large-scale or comprehensive adaptation projects, requiring closer support and coordination from the central government to ensure future consistency and effectiveness.

3.2.3 Reducing Disaster Risks and Minimizing Climate Change Impacts

Meteorological and Hydrological Monitoring: Monitoring of climate change, sea level rise, and saline intrusion

At the central level, ministries and sectors have made significant strides in strengthening monitoring and surveillance capacity. The MAE plays a leading role in implementing projects to modernize the hydrometeorological monitoring network, upgrade infrastructure, and apply advanced technology. The ministry is implementing the project Modernizing the Hydrometeorological Sector to 2025, with a vision to 2030,[27] to improve the quality and accuracy of forecasts through the installation of automatic monitoring stations in key areas. The MAE has also implemented the project Building a Network to Monitor Climate Change and Sea Level Rise, focusing on installing salinity-measuring devices in major river basins.

[27] Decision No. 1261/QD-TTg dated October 27, 2023 [35].

The MAE also periodically issues and updates climate change scenarios as a basis for ministries, sectors, and localities to develop response plans to climate change and socio-economic development plans. The latest climate change scenario[28] was issued by the MAE in 2021 [6]. The ministry also closely coordinates with localities to develop and implement programs to monitor the impacts of climate change on agriculture and water resources, taking into account areas vulnerable to drought, floods, and saltwater intrusion.

At the local level, many provinces and cities have proactively invested in and implemented monitoring and surveillance activities appropriate to local characteristics and risks. Mekong Delta provinces, such as Ben Tre, Soc Trang, and Tien Giang, have focused on monitoring salinity intrusion and sea level rise through deploying automatic salinity measurement systems and installing monitoring stations to support people and businesses in adjusting production activities. In the Central Highlands, provinces such as Dak Lak and Lam Dong have focused on monitoring groundwater and rainfall to protect industrial crops. Central provinces, such as Quang Binh, Thua Thien Hue, and Quang Nam, have increased their monitoring of rainfall, sea level, and water quality to prevent floods and control salinity intrusion. Binh Dinh province has built an automatic rainfall and water level monitoring system and disaster management software. Northern mountainous provinces, such as Lao Cai, have invested in automatic rain gauges and integrated weather stations to improve forecasting capacity, while provinces in the Northern delta, like Hanoi, Hai Phong, and Quang Ninh, have invested in modern measurement and monitoring systems. Hanoi has upgraded drainage systems and rain observation stations to minimize urban flooding risks during the rainy season. Hai Phong has installed automatic salinity measurement devices at major ports to ensure economic activities remain unaffected by sea level rise. Quang Ninh has launched climate monitoring projects in coal mining areas to mitigate the impacts of climate change on this critical industry. In the Southeast region, provinces such as Dong Nai and Ba Ria–Vung Tau have also upgraded meteorological and water quality monitoring stations. Ho Chi Minh City is implementing a plan to hire software to monitor natural disasters and coordinate the regulation of the Dau Tieng reservoir to prevent flooding.

However, there are still differences in monitoring and surveillance capacity between regions. The Mekong Delta and the Central region have a higher level of deployment than the Northern mountainous region and the Central Highlands. This indicates the need for continued investment and cooperation to improve monitoring capacity evenly across the country. Overall, hydrometeorological and climate change monitoring have improved significantly, but further investment and development are needed to provide more timely and accurate information, effectively supporting response work and minimizing damage caused by climate change.

[28] It primarily relies on dynamic downscaling using six distinct regional climate models (AGCM/MRI, PRECIS, CCAM, RegCM, clWRF, and RCA3). These regional models are driven by outputs from 26 global climate models sourced from CMIP5, ensuring a comprehensive and diverse range of projections. For sea level rise, the scenario incorporates updates from the IPCC *Special Report on the Ocean and Cryosphere in a Changing Climate* (SROCC), accounting for key contributing factors such as thermal expansion, ice melt, and changes in land water storage. The scenario's foundational data includes observed meteorological and hydrological information up to 2018, CMIP5 global model outputs, observed sea-level data up to 2018, Antarctic ice melt data from SROCC, and high-resolution elevation models updated between 2019 and 2020.

Disaster Risk Management

At the central level, the MAE is responsible for managing the national meteorological and hydrological observation network, organizing forecasting and early-warning activities for natural disasters, and modernizing hydrometeorological technology to reach the same level as advanced countries in the region. The Climate Change and Sea Level Rise Monitoring Network project [36] was implemented, focusing on equipping GHG monitoring stations and building new marine meteorological stations, along with installing salinity-measuring devices at hydrological stations. Projects such as Modernizing the Meteorological Sector to 2025 and 2026-2030 and Integrated Flood Risk Management to Adapt to Climate Change have contributed to improving the capacity to detect and to provide early warnings of natural disasters and provide detailed information on droughts to serve sectors and localities. The legal framework has also been strengthened with Decision No. 18/2021/QD-TTg detailing the level of natural disaster risk and the responsibilities of relevant actors [37]. The MOC has also made significant contributions by implementing automated meteorological information systems at major airports, such as Tan Son Nhat and Da Nang, along with upgrading automatic meteorological stations along waterways and aviation routes. This contributes to ensuring transportation safety under extreme weather conditions.

Table 6. Summary of projects and financial investments for disaster risk reduction and adaptation to climate change in different regions of Viet Nam

Region	Upgraded rainfall monitoring stations	Flood risk maps developed	Sea level monitoring stations	Allocated budget (VND billion)
Northwest	25	10	0	500
Northeast	45	15	5	800
Red River Delta	30	12	10	750
North Central Region	50	20	15	1,200
South Central Coastal Region	35	18	12	1,000
Central Highlands	20	8	5	600
Southeast Region	60	25	20	1,500
Mekong Delta	70	30	25	2,000

Source: From annual M&E reports and surveys.

At the provincial level, many provinces and cities have proactively implemented specific activities to mitigate natural disaster risks. Tra Vinh province has modernized meteorological stations, and Long An has completed commune-level natural disaster risk warning maps. In addition, Lao Cai has invested in automatic rain gauge stations in areas vulnerable to heavy rain and landslides. Coastal areas, such as Quang Ngai and Ninh Thuan have focused on projects to prevent saline intrusion and dredging rivers, while Can Tho has built a natural disaster risk map and a modern salinity monitoring network with international funding. In the Mekong Delta, Bac Lieu province has invested in projects to prevent coastal erosion and storm shelters. Provinces such as Ben Tre, Khanh Hoa, Bac Lieu, and Soc Trang have also implemented many projects to build and upgrade dike systems, anti-erosion embankments, saltwater intrusion sluices, and other irrigation works to protect production and livelihoods. In the Northern delta, Thai Binh and Nam Dinh provinces have proactively reviewed key and vulnerable dyke routes, developed protection plans, and relocated residents from risk areas. Mountainous provinces,

such as Lai Chau and Phu Tho, have focused on researching and implementing measures to prevent landslides and developing maps of natural disaster risk zoning. Table 3 lists projects and financial investments that enhance resilience and adaptation to climate change in different regions of Viet Nam.

In general, disaster risk management and CCA have been priorities at both the central and local levels, with a focus on investment in technology, infrastructure, and legal frameworks.

Summary

In conclusion, efforts have concentrated on modernizing the hydrometeorological monitoring network, enhancing the capacity to monitor climate change, sea level rise, and saline intrusion, as well as adopting advanced technology for better data collection and improving early-warning systems. At the local level, significant measures have been implemented, such as developing disaster risk maps; constructing infrastructure like dikes, embankments, and sluices to combat floods and saline intrusion; and implementing landslide prevention projects. Although many results have been achieved, the disparity in monitoring and surveillance capacity across different regions remains a challenge that needs to be addressed to ensure effective nationwide disaster risk management.

3.2.4 Resources for Climate Change Adaptation

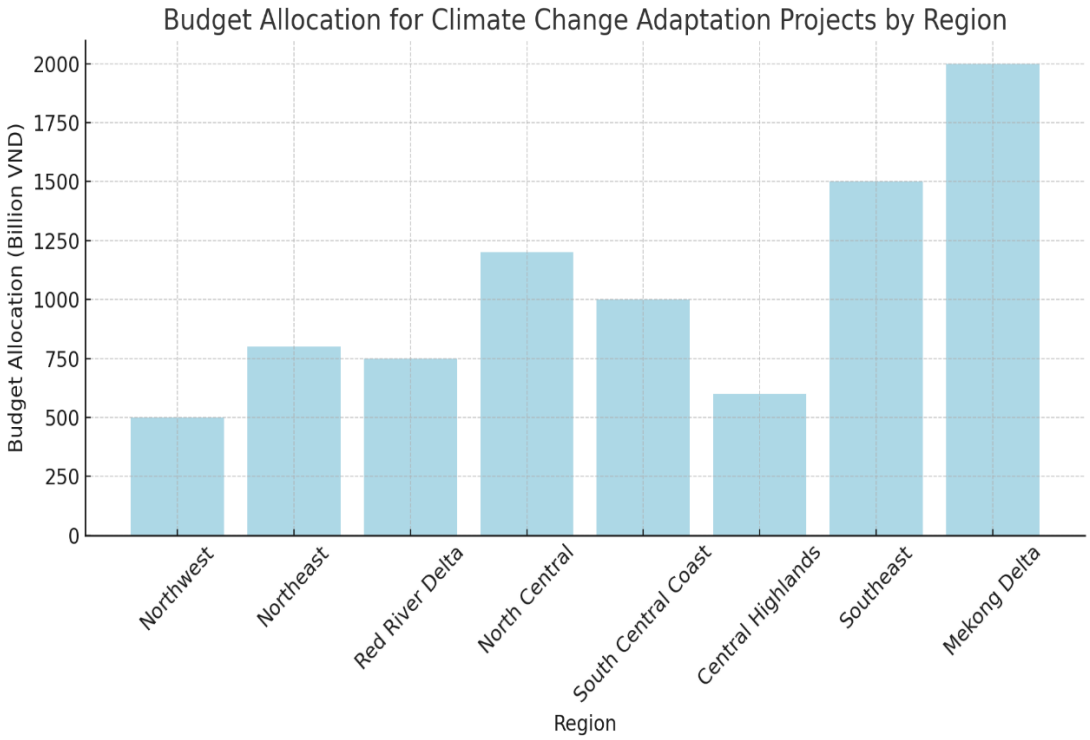
Investment Resources

Investment resources for CCA in Viet Nam include the state budget, official development assistance (ODA), international funding, private investment, and social funds. Figure 7 illustrates the budget allocation for CCA projects by region.

The state budget is the primary financial source, equivalent to 40% of the total resources. This allocation highlights the leading role of the government in implementing CCA policies and programs. The majority of the budget is allocated to the MARD, MOC, and Ministry of Transport for large infrastructure projects, such as coastal dike construction, erosion control embankments, and upgrading urban drainage systems. Other sectors, like education and public awareness, still receive insufficient investment.

Support from international organizations, such as the UN Development Programme (UNDP), Asian Development Bank (ADB), and Green Climate Fund, plays a crucial role in implementing research projects, building capacity, and developing adaptation models for climate change. However, disbursement of ODA funds still faces several challenges, including complex administrative procedures. In the period of 2016 to 2020, about USD 4.1 billion in ODA capital and preferential loans was assigned to finance projects in the field of environmental protection and climate change response, accounting for 31.5% of the total mobilized capital of the whole period.

Figure 7. Budget allocation for CCA projects by region



Source: From annual M&E reports and surveys.

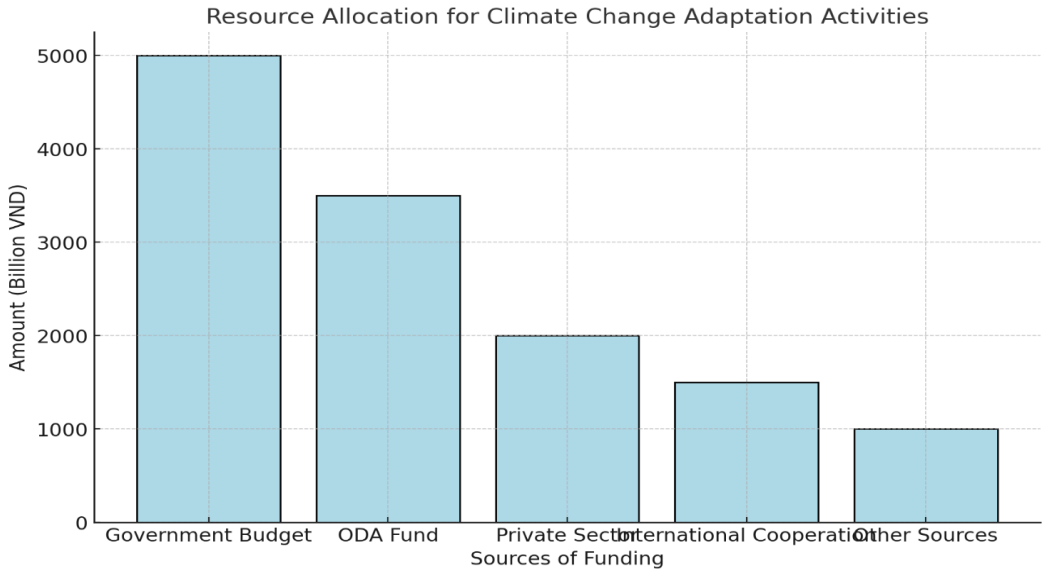
According to a report by the MAE, Viet Nam has mobilized nearly USD 2 billion for climate change response from ODA since 2010, of which the Climate Change Response Support Program alone received about USD 1.5 billion in low-interest loans. In early 2020, the government negotiated with the World Bank for a preferential loan of USD 86.48 million from the International Development Association to implement the 2nd Climate Change and Green Growth Policy Development Support Program (DPF2). With this funding, it aimed to support the development and implementation of priority programs and projects to respond to climate change and prevent landslides, focusing on the Mekong Delta region, and contribute to the implementation of the plan to implement the Paris Agreement on Climate Change and Resolution No. 120/NQ-CP on the sustainable development of the Mekong Delta in response to climate change [12]. The funding is based on specific project methods and budget support for the target program to respond to climate change and green growth in the period 2016 to 2020. Technical funding, such as from the NAP Global Network, has also contributed to reinforcing capacities at the MAE. Technical support from doners is very crucial for capacity building at the national and sub-national levels.

To mobilize the private sector, the State Bank has issued Circular 17/2022/TT-NHNN on guidelines for environmental risk management in credit-granting activities [58]. The MAE has submitted to the Prime Minister for approval of a decision promulgating environmental criteria and certification for projects that grant green credit and issue green bonds.

In recent times, awareness in the banking system has changed significantly. Credit institutions have actively participated in providing credit to green industries and sectors in response to climate change. In the past 7 years (2017–2023), the green credit balance of the banking system has an average growth rate of more than 22%/year. By December 31, 2023, 47 credit institutions had kept a green credit

balance of VND 620,984 billion, an increase of 24% compared to the end of 2022. Accounting for about 4.5% of the total outstanding debt of the whole economy, this green credit balance focuses mainly on renewable energy, clean energy (accounting for nearly 45%), and green agriculture (nearly 30%). For example, Agribank provides loans for shrimp farming projects under mangrove canopies, and MSB Bank provides loans for the 1 Million Hectares Low Emission Rice project. This is a positive sign, reflecting the growing interest of businesses in investing in renewable energy, clean technologies, and sustainable solutions. However, this contribution remains low compared to its potential, due to a lack of appropriate incentives and supportive policies.

Figure 8. Resource allocation for CCA activities



Source: Ministry of Planning and Investment internal M&E report.

Resources for CCA investment have improved. However, the total resources for CCA still do not meet actual needs. Viet Nam needs to mobilize additional resources, particularly from the private and international sectors, while improving mechanisms for resource allocation and utilization. The absence of policies encouraging private investment and administrative reforms for ODA funds are urgent issues that need to be addressed. Figure 8 illustrates the sources and financial allocation for CCA activities in 2022.

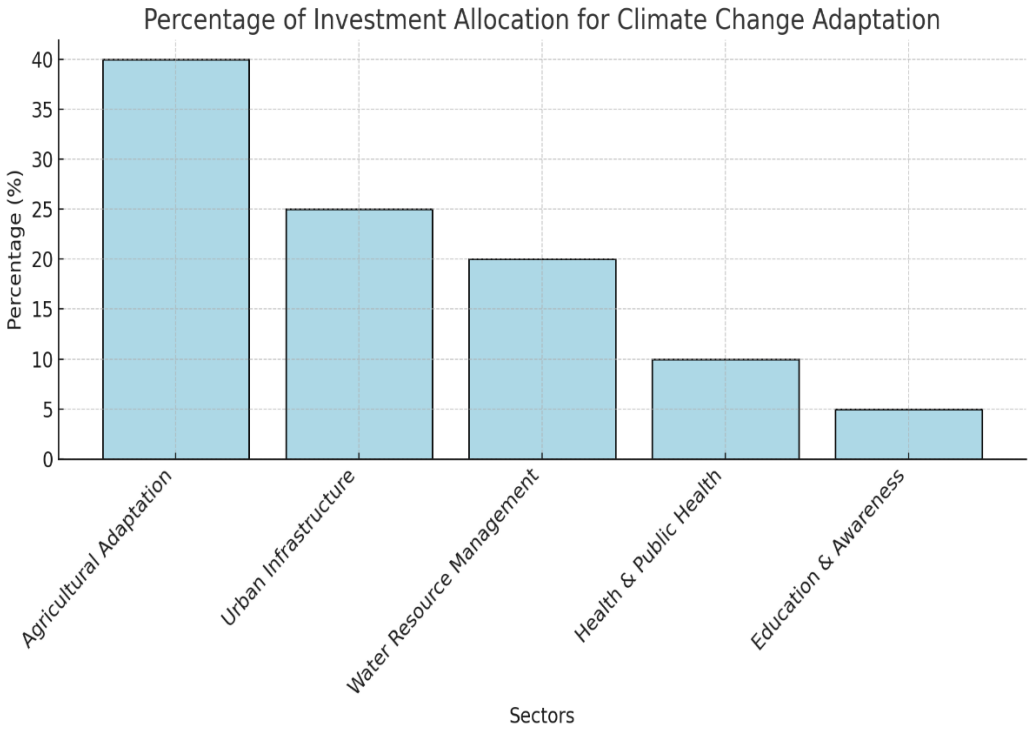
Management and Use of Investment Resources

The management and use of investment resources for adaptation to climate change in Viet Nam is crucial for ensuring the effectiveness and sustainability of CCA programs and projects. These resources include the government budget, ODA and international funding, and investments from the private sector. However, there are some limitations in the allocation and use of resources, such as the dispersed nature of investments, which have not focused on key sectors or the most vulnerable areas.

Specifically, in the Mekong Delta and the South Central Coastal region, which are severely affected by saltwater intrusion and sea level rise, resources need to be prioritized for major projects. To optimize resource use, a financial monitoring mechanism needs to be established, and private and international sector participation needs to be encouraged through investment incentive policies. Figure 9 illustrates the percentage of resource allocation for CCA sectors in Viet Nam.

This figure shows the uneven allocation of investment resources for various CCA sectors in Viet Nam. Agriculture holds the highest share at 40% of the total budget, as it is the sector most heavily impacted by climate change and requires solutions such as crop restructuring and smart irrigation technologies. Urban infrastructure ranks second at 25%, reflecting the urgent need to improve drainage systems and develop sustainable cities. Water resource management accounts for 20%, aiming to mitigate the impacts of drought and saltwater intrusion. Health and education receive lower allocations, at 10% and 5%, respectively, but still play an important role in raising awareness and protecting public health. Balancing the budget between sectors is a crucial factor in the effectiveness of CCA programs in Viet Nam.

Figure 9. Allocation of investment resources for CCA sectors in Viet Nam



Source: Ministry of Planning and Investment.

Summary

In conclusion, Viet Nam has mobilized investment resources for CCA from various sources, including the state budget, ODA, private investment, and international funds. Although the state budget plays a primary role and ODA provides significant support, the total resources allocated do not fully meet actual needs. Challenges remain in securing additional funds, particularly from private and international sectors, due to the need for more effective incentives, supportive policies, and administrative reforms. Furthermore, limitations in resource management and utilization persist, including dispersed investments that do not always prioritize the most vulnerable areas and are allocated unevenly across different sectors.

3.2.5 Science, Technology, and International Cooperation

Scientific Research and Technology Application

At the central level, the MOST has implemented the Science and Technology Development Strategy and Innovation until 2030, with important focuses on developing technologies to reduce GHG emissions, forecasting disasters, and applying environmentally friendly technologies. The MOC has piloted the use of sea sand to replace river sand in expressway projects in the Mekong Delta to reduce erosion caused by sand mining. In 2024, the ministry also completed the evaluation and testing of synthetic fibre sleepers on steel bridge girders and railway tracks in the national railway system. These synthetic sleepers are used to replace wooden sleepers to enhance durability and lifespan, contributing to economic efficiency and CCA. Additionally, a draft TCCS (Technical Standard) titled *Synthetic Fiber Sleepers: Technical Requirements, Testing Methods, Construction, and Acceptance* has been developed.

At the provincial level, provinces have actively implemented scientific and technological research tailored to practical conditions. In Tien Giang, research on arbuscular mycorrhizal fungi microorganisms is being used to improve drought and salt tolerance for longan trees while also building a drip irrigation model for green asparagus to conserve water. The province also applies techniques for durian cultivation adapted to drought and salinity, including a 5-step process for recovering durian gardens after drought and salinity in various districts. Son La has introduced new crop varieties, as well as preservation and processing technologies, to increase the value of agricultural products. Soc Trang implemented many scientific tasks in 2022, including 20 provincial projects, focusing on adaptation to climate change. Tra Vinh has undertaken specific scientific research topics aimed at adapting to climate change, such as evaluating and forecasting river flow and sedimentation (Co Chien and Hau rivers), assessing and proposing solutions for riverbank and coastal landslide prevention (2021–2030, vision to 2050), and selecting and test planting forestry species. Thanh Hoa has applied sonar fish finders and LED lighting systems to enhance fisheries productivity amid declining resources, while Dong Nai has also developed numerous scientific projects related to mitigating climate change impacts.

In conclusion, both central and local levels in Viet Nam are prioritizing scientific research and technology application to support CCA. Provinces are conducting practical research and adopting technologies tailored to their specific challenges, including developing drought- and salt-tolerant crops, implementing water-saving irrigation, enhancing agricultural and fishery productivity through technology, and undertaking targeted studies on water resources and landslide prevention. These efforts contribute to the development and implementation of localized CCA solutions.

International Cooperation

At the central level, ministries and sectors have proactively implemented international cooperation programs to enhance CCA capacity, especially in the areas of natural disaster monitoring, sustainable urban development, and scientific and technological research. The MAE has played a central role in implementing international commitments on climate change, such as the Paris Agreement, while coordinating with organizations such as the UNDP, Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ), and the World Bank to implement technical and financial assistance projects. It improves the disaster early-warning system and supports the development of CCA policies. The MOC has cooperated with international partners such as Seco (Switzerland) and AFD (France) to build an urban risk database and develop technical guidance documents to help localities integrate

CCA solutions into planning. The MOST has coordinated with Korea to conduct joint research on climate change response technologies. These research results not only bring scientific value but also have a positive impact on socio-economic development, contributing to promoting advanced technological solutions in resource management and environmental protection.

At the local level, in the Mekong Delta, provinces such as Can Tho and Bac Lieu have cooperated with the Netherlands and received funding from international funds such as the Global Environment Facility and Green Climate Fund to implement projects on water management and early-warning systems for saline intrusion. Can Tho City has also implemented many international projects with partners such as the World Bank and the UN Environmental Programme. The Viet Nam-Korea Institute of Science and Technology has developed a saline water treatment system and deployed it in Ben Tre. Central Highlands provinces, such as Dak Lak and Gia Lai, have also cooperated with the UNDP in sustainable forestation and water resources management projects. Central provinces, such as Da Nang and Quang Nam, have cooperated with the Japan International Cooperation Agency and ADB to build sustainable urban infrastructure and enhance resilience to natural disasters. Nghe An and Ha Tinh, with support from GIZ, have developed sustainable agricultural programs and reduced GHG emissions in production. Thanh Hoa has leveraged support from the Japan International Cooperation Agency to improve disaster risk management and enhance the resilience of vulnerable communities. In the Northern mountainous area, Lao Cai and Yen Bai have coordinated with the Swedish International Development Cooperation Agency to implement climate-adaptive agricultural models for ethnic minority communities. In the Red River Delta, Nam Dinh and Thai Binh have worked with the Netherlands to implement smart water management programs to minimize damage from flooding and rising sea levels.

In general, international cooperation has made important contributions to strengthening scientific and technological capacity and applying CCA solutions in Viet Nam. Cooperation programs not only provide financial and technical resources but also help improve management capacity and create international networks, contributing to the country's sustainable development goals.

Summary

In conclusion, science, technology, and international cooperation are vital to Viet Nam's CCA efforts. Central ministries guide the development of relevant technologies and foster international partnerships. Meanwhile, provinces conduct targeted research and apply technologies suited to local conditions, focusing on climate-resilient agriculture, water management, and disaster forecasting. International cooperation provides financial support, technical assistance, and joint research programs with global partners. While these efforts have strengthened capacity and supported CCA solutions, challenges persist in fully harnessing the potential of science, technology, and international collaboration. These solutions include ensuring the widespread application of research findings, effectively coordinating international support across various levels and sectors, and navigating administrative complexities in accessing and utilizing international resources.

3.2.6 Training, Communication, and Awareness Enhancement

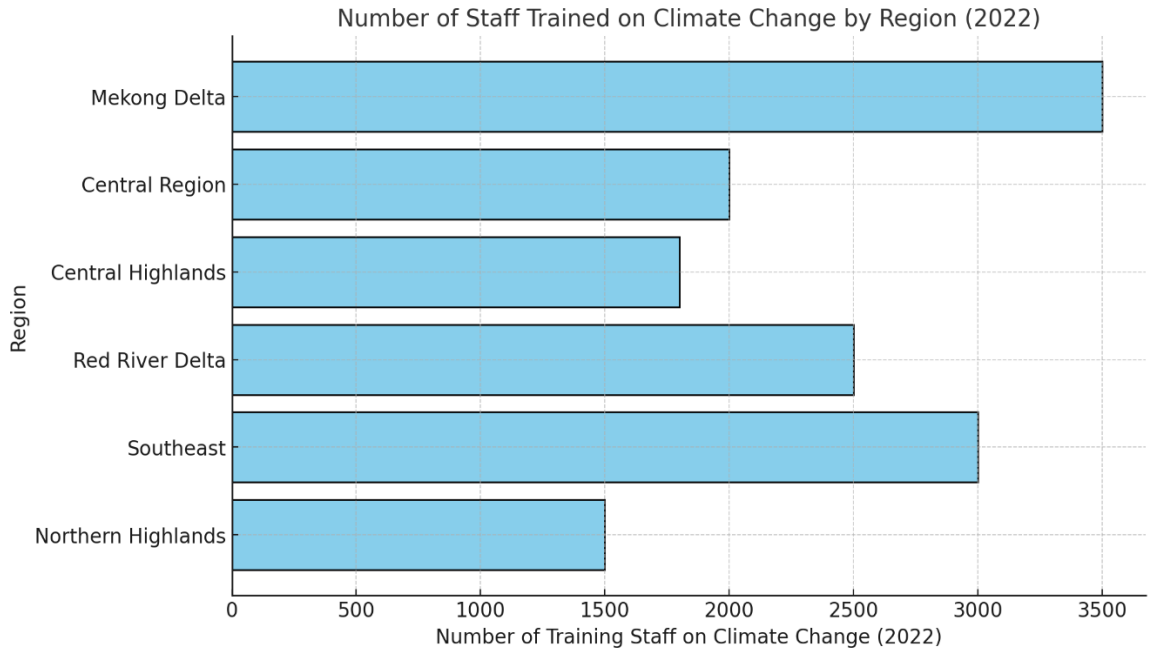
Professional and Technical Training on Climate Change

At the central level, the MAE plays a leading role, actively coordinating with international organizations such as the UNDP, ADB, NAP Global Network, and GIZ to implement in-depth training and capacity-building programs. These programs focus on key areas such as CCA and building climate

change scenarios, aiming to equip officials in charge of climate change-related issues with knowledge and skills. Furthermore, ministries and sectors like the MARD have organized training programs on sustainable and climate-resilient for agricultural officials in areas vulnerable to the impacts of climate change.

At the local level, many provinces and cities have proactively implemented training programs and capacity building for CCA for different groups. Dong Thap and Can Tho provinces have focused on training staff on water resource management, saltwater intrusion prevention, early warning, and climate data management. Meanwhile, Central provinces, such as Nghe An and Quang Nam, have focused on training farmers on sustainable farming techniques to adapt to the impacts of climate change. The Central Highlands provinces of Lam Dong and Dak Lak focus on training on forest management and biodiversity conservation, equipping forestry staff with sustainable conservation methods and mitigating the impacts of climate change on forest ecosystems. Figure 10 illustrates the number of staff who work in state agencies participating in climate change training courses in 2022.

Figure 10. The number of staff trained on climate change in different regions in 2022



Source: From annual M&E reports and surveys.

In conclusion, professional and technical training on climate change is a key priority for both central ministries and local authorities in Viet Nam. The MAE, often in collaboration with international partners, implements human resource training programs about adapting to climate change and developing climate change scenarios. Other ministries also provide specialized training for their respective sectors. At the local level, provinces implement diverse training programs tailored to regional needs, focusing on areas like water resource management, sustainable farming techniques, and forest management. However, ensuring equitable access and effective training programs, especially in resource-limited areas, remains a challenge to be addressed.

Communication and Raising Awareness About Climate Change

At the central level, the MAE plays a leading role, coordinating with major media agencies like Viet Nam Television (VTV) to create special broadcast programs, reports, and documentaries[29] to provide updated information on both domestic and international climate change issues. Through these activities, both the government and citizens have gradually increased the awareness of CCA in the general population, promoting proactive behaviour in environmental protection and disaster prevention. The ministry also presides over large-scale communication campaigns such as Earth Hour, World Environment Day, and World Water Day, focusing on CCA and emission reductions. The Ministry of Industry and Trade has implemented communication programs on saving energy and renewable energy use and organized green business forums. Training programs for businesses in the industrial and service sectors to reduce GHG emissions and promote cleaner production have been implemented.

Table 7. Number of conferences, training sessions, and communication events on climate change in some localities in 2022

Locality	Conferences/training (number of sessions)	Advocacy events (number of sessions)
Ha Nam	12	8
Soc Trang	15	10
Dong Nai	9	6
Ninh Thuan	10	5
Phu Tho	8	7
Tra Vinh	14	9
Long An	11	8

Source: From annual M&E reports and surveys.

The MOC focuses on raising awareness through workshops and training on designing, constructing, and managing transport infrastructure in extreme weather conditions, contributing to enhanced capacity for officials and businesses in the sector. The Ministry of Education and Training has included climate change content in general and university education programs. Many schools across the country have organized extracurricular activities and workshops on environmental protection and CCA that involve the active participation of students. The Ministry of Health focuses on raising awareness on the impact of climate change on public health and preventive measures. Training programs on preventing climate-related diseases, such as dengue fever and vector-borne diseases, have been regularly organized for local health officials and communities. The ministry has also increased public education on the importance of sanitation and clean water in the context of climate change. The Ministry of Public Security has integrated climate change and response content into training and communication activities in the sector.

At the local level, many provinces and cities have proactively implemented communication activities suitable to local characteristics and conditions. Some provinces have included adaptation to climate

[29] VTV programs about climate change: https://vtv.vn/video/bien-doi-khi-hau-cho-rung-mai-xanh-730185.htm [53].

change in their extracurricular programs and organized events to celebrate environmental holidays. Localities have also cooperated with media agencies to compile reports and seminars to raise public awareness and encourage response actions. Ha Nam province has included CCA in its extracurricular programs; Soc Trang has implemented a community training and advocacy plans; Dong Nai has organized workshops and participated in international events; and Ninh Thuan has promoted education and issued resolutions on climate change. Northern provinces such as Phu Tho have improved the quality of their communication campaigns; Quang Ninh has integrated communication content for environmental protection activities; and Hai Duong has increased information in newspapers and on radio and television. Central provinces such as Quang Ngai have focused on integrating climate change content into their socio-economic development plans, and Quang Binh has organized training courses on urban CCA. Provinces in the Mekong Delta region such as Hau Giang have increased communication on CCA activities, and An Giang has approved and implemented a communication project to improve capacity and awareness on climate change. Ho Chi Minh City has organized many training courses, developed newsletters and communication clips, and promoted sustainable farming techniques.

Summary

Training, communication, and awareness raising about climate change are top priorities for ministries, sectors, and localities in Viet Nam. At the central level, specialized training programs on CCA and response, often with international support, focus on officials, public servants, and workers in relevant fields. At the local level, provinces implement diverse training programs tailored to regional needs, such as water resource management, sustainable farming, and forest management. Communication activities use various channels, community campaigns, and educational programs to raise awareness among the public, businesses, and students about the impacts of climate change and response solutions. However, challenges persist in ensuring equitable and effective access to training programs, especially in resource-limited areas. Therefore, continuous efforts are needed to ensure the sustainability and effective engagement of all segments of the population in communication campaigns.

3.3 Gender Integration and Social Inclusion in the NAP Process

3.3.1 Practical Implementation of Gender Integration in NAP Implementation

The report on the NAP implementation status according to Decision No. 1055/QD-TTg from 15/18 ministries and 44/64 provinces and cities shows that the proportion of ministries, sectors, and localities addressing gender and vulnerable groups in NAP implementation is still very low. Detailed information on the integration of gender equality and social inclusion (GESI) into the NAP from NAP implementation reports is presented in Table 8.

Table 8. Integration of GESI into the CCA policies and activities as mentioned in NAP implementation reports

No.	Contents	# of ministries	# of localities
1	Mention about gender/vulnerable groups	3/15	12/44
2	Mention gender/vulnerable groups and climate change nexus	2/15	7/44
3	Contribution of the Women's Unions in developing CCA policies and implementing CCA activities	0/15	3/44

Source: From annual M&E reports and surveys.

In the NAP, the MOLISA is assigned to implement three tasks of this report. However, the execution of these tasks has faced numerous challenges due to the lack of specific regulations and financial resources, as outlined below:

1. Task 1: Develop a communication project to promote green growth, including "Gender and Climate Change" and "Gender Equality and Climate Change." This task lacks clear criteria or detailed content, making it difficult to define objectives.
2. Task 2: Develop policies to integrate gender into CCA activities. The goal was to issue these policies by 2023. However, drafting these policies requires time for review, research, consultations, development, and approval from competent authorities. Furthermore, integrating gender into policies involves multiple sectors, making it difficult to achieve results within the same year. MOLISA submitted the National Target Program on Sustainable Poverty Reduction for the 2021–2025 period, known as Decision No. 90/QĐ-TTg, to the Prime Minister for approval in 2022 [38].
3. Task 3: Provide soft skills training for women workers participating in new economic sectors oriented toward CCA. Comprehensive and effective efforts have been made to train, retrain, and upgrade the professional skills of workers, particularly in key economic regions, areas significantly impacted by climate change, and zones with a high concentration of industrial parks and export processing zones. These initiatives aim to meet the growing demand for skilled labour in the context of economic recovery and to support adaptation to new production conditions. As a result, more than 2.259 million individuals were enrolled in training programs in 2022, achieving 108.3% of the planned target, while around 2.096 million students graduated, exceeding the target by 115%.

During the implementation process, MOLISA encountered funding issues. In 2021–2022, MOLISA was not allocated funds to implement these tasks. Therefore, the timeline for completing the assigned tasks based on expected outcomes is unrealistic and unfeasible.

Among the 18 ministries and four equivalent agencies, besides MOLISA, only two ministries have activities related to gender in CCA: the Ministry of Foreign Affairs and the MIC. These activities include developing and implementing CCA strategies and action plans for the Mekong River Basin with strategic priorities, including gender issues. This includes creating cross-border adaptation plans that incorporate gender considerations and raising awareness about impacts, challenges, and disaster prevention measures, focusing on vulnerable groups such as children and women.

Among the seven localities listed in Table 8 that have activities related to GESI in their reports (Quang Tri, Thanh Hoa, Ca Mau, Tay Ninh, Hai Phong, Bac Lieu, and Lai Chau), their activities mainly focus on raising awareness about climate change and training on disaster prevention and livelihood transitions for vulnerable groups and women.

According to a survey on NAP implementation and the M&E system, the Department of Natural Resources and Environment, the focal agencies for CCA in 14 surveyed provinces have not developed plans to integrate GESI in CCA policies. CCA activities with GESI consideration primarily involve training and raising awareness among women and children about climate change.

In most localities, the Women's Unions at the provincial and district levels have implemented environmental activities, including climate change and disaster relief support for the poor and children. However, these activities are part of routine environmental and disaster risk reduction tasks and have not yet been considered as part of CCA efforts.

Training and Raising Awareness

Climate change awareness programs for management officials and communities have increasingly focused on gender factors, particularly enhancing the role of women and vulnerable groups in disaster prevention and adaptation activities. Some localities, such as Hai Phong, Bac Lieu, Ca Mau, and Lai Chau, have been very proactive in implementing many climate change awareness programs for women and vulnerable groups. However, in many areas, awareness about the role of women and vulnerable groups in responding to climate change is still limited.

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Disaster Prevention and Livelihood Transition

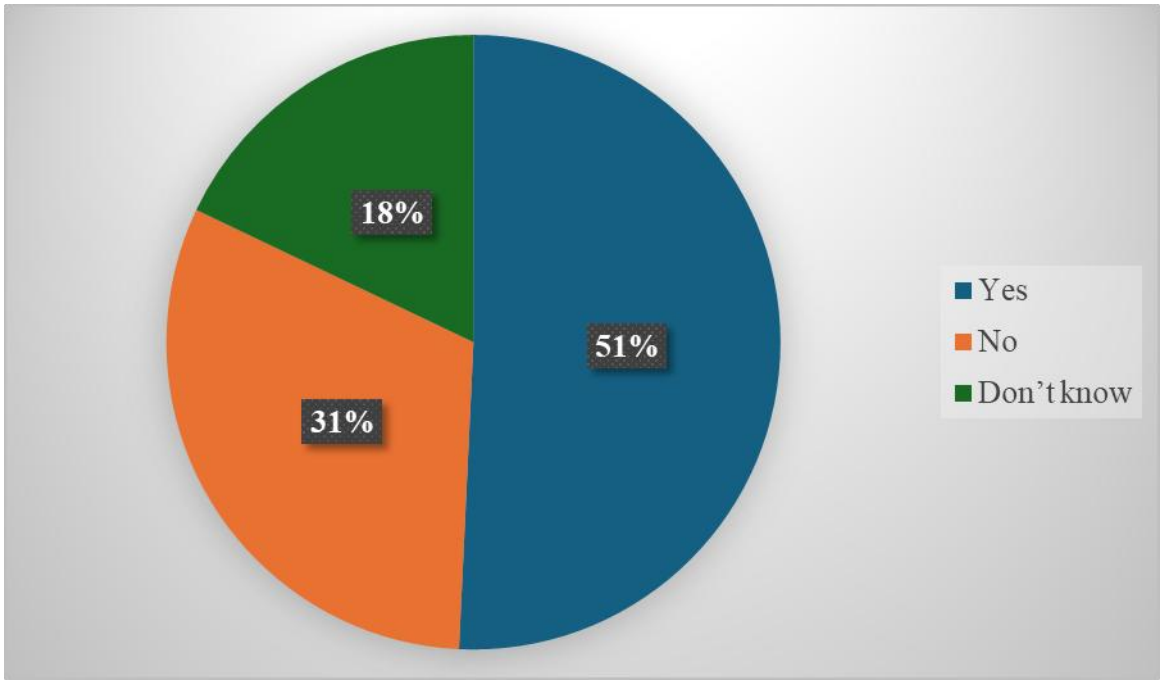
Some projects have implemented vocational training and livelihood transition programs for women and vulnerable groups in areas affected by climate change, such as the following projects: Ehancing Resilience to Climate Change for Vulnerable Coastal Communities in Viet Nam, which is funded by the Green Climate Fund through the UNDP; the Mekong Delta Climate Resilience Program, funded by Switzerland and Germany for 13 provinces in the Mekong Delta; and the Priority Infrastructure and Urban Climate Adaptation Project in Vinh City, Nghe An Province, supported by the World Bank. These programs help various genders and vulnerable groups enhance their capacity and offer opportunities to engage in new economic activities and disaster prevention, contributing to improving livelihoods and reducing dependence on sectors vulnerable to climate change. However, the scope of implementation is still limited and depends on international funding.

Several localities have implemented numerous activities related to livelihood transition and disaster prevention training, including Quang Tri, Thanh Hoa, Ca Mau, and Tay Ninh.

In addition to NAP reports from ministries, sectors, and provinces/cities, a survey conducted in October 2024 also describes the NAP implementation situation from 2020. As shown in Figure 11,

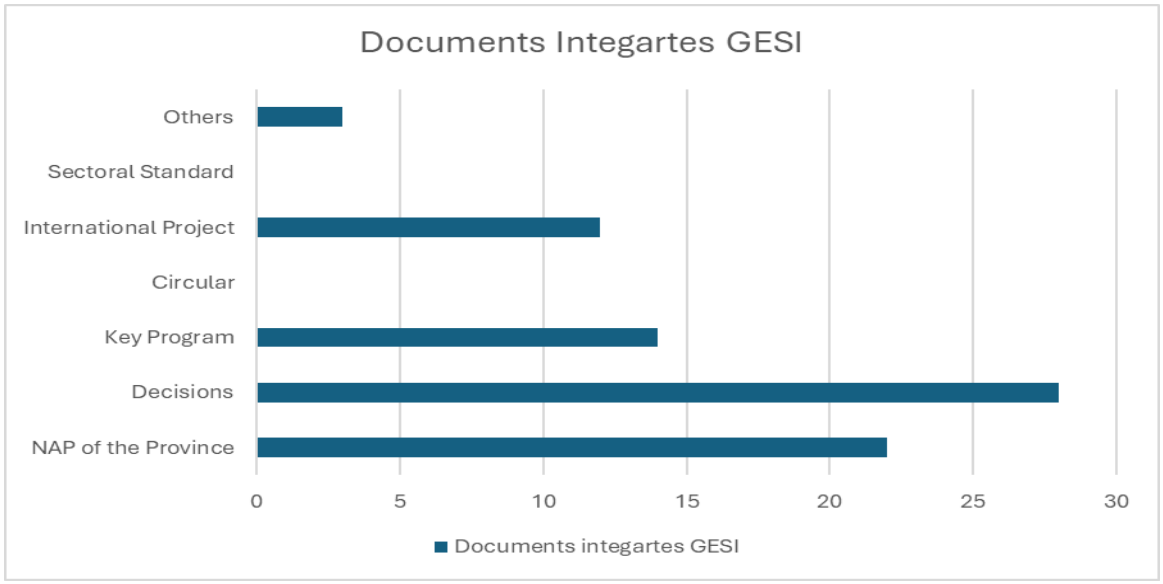
among the 70 units surveyed, 50.7% of the units reported that their localities had integrated GESI in CCA policies and activities, 31.3% of the total respondents did not know whether their localities had integrated GESI in CCA policies and activities, and 17.9% of them confirmed that localities have not yet integrated GESI.

Figure 11. GESI Integration into CCA policies and activities of the provinces



Source: From annual M&E reports and surveys.

Figure 12. Number of respondents confirmed the GESI integration in CCA policies



Source: From annual M&E reports and surveys.

According to Figure 12, the documents integrating GESI include local plans to implement NAP, decisions related to various sectors, local programs, and international projects. Among these types of

documents, the two that integrate GESI with the highest rates are decisions and local plans to implement NAP, accounting for 71.8% of respondents and 66.7% of those interviewed, respectively. The integration of gender in international programs and projects is rated as average. No one selected GESI to be integrated into circulars or technical standards.

Half of the respondents stated that the province's planning had integrated gender into the NAP with the status of "effectively implementing policies to promote gender equality and the advancement of women at all levels and sectors." However, a survey of 14 localities showed that no locality has specific regulations on gender integration in CCA plans or has issued plans to implement gender integration in CCA.

In most localities, the Women's Union at the provincial and commune levels has implemented environmental activities, including content related to climate change and support for the poor people and children to overcome the consequences of natural disasters. However, these activities are part of regular environmental tasks and disaster risk reduction, not specifically related to CCA.

In all 14 surveyed localities, the Department of Natural Resources and Environment, the focal agency for CCA, has not developed a plan to integrate GESI into the implementation of the NAP. Activities related to GESI in the NAP primarily focus on training and raising awareness for women and children about climate change.

Some provinces, such as Ca Mau, Bac Lieu, and Ha Noi, have been more proactive in integrating GESI into the implementation of the NAP compared to other provinces and have implemented some GESI-related programs and projects, such as Gender and Climate Change, Gender Equality and Climate Change, and soft skills training programs for women workers to participate in new economic sectors aimed at CCA.

3.3.2 Implementing Gender Integration Into the M&E System

On January 28, 2022, the Prime Minister issued Decision No. 148/QD-TTg [18], which established the National Monitoring and Evaluation System for Climate Change Adaptation Activities and includes three gender-related indicators for assessing labour and social dimensions, (i.e. number of vocational training and livelihood transition programs for communities and vulnerable groups affected by climate change) (Indicator II.8.1); percentage of people, especially women, in vulnerable areas affected by climate change who receive vocational training and livelihood transition support (Indicator II.8.2); percentage of people, especially women, in vulnerable areas affected by climate change who receive soft skills training on CCA and disaster prevention (Indicator II.8.3).

Currently, only four localities report on the three gender-related labour and social indicators. Of these, only two provinces (Ben Tre and Thai Binh) have reported implementing vocational training and livelihood transformation programs for communities and vulnerable groups, while two other provinces (Lang Son and Ho Chi Minh City) have not organized any training programs. In a survey of 14 provinces at the end of October 2024, when asked about the three labour and social indicators specified in Decision No. 148/QD-TTg on the M&E system, 74.6% of respondents stated they were unaware of these indicators. Only 4.5% of respondents from Thai Binh and Ben Tre provinces indicated that their provinces had M&E reports that provided the three indicators.

Table 9. Results of implementing labour and society tasks in provincial and city reports

Province/city	Indicator II.8.1	Indicator II.8.2	Indicator II.8.3
Thai Binh	12	-	-
Ben Tre	16	11,985 people	40.11%
Lang Son	-	0	0
Ho Chi Minh City	-	660 people	-

Source: From annual M&E reports and surveys.

In the four reports mentioned, Ben Tre's report provided information on the percentage of women trained in livelihood transformation programs or soft skills to adapt. This, along with the observed fact, indicates that although some localities have shown interest in community-wide training on CCA programs, there is no specific program or priority for women. Detailed statistical data from the reports of the localities is presented in Table 9.

3.3.3 Achievements and Limitations in the Legal and Policy Framework

Viet Nam recognizes the importance of integrating GESI factors into CCA policies and actions. Developing specific policies to support vulnerable groups and to integrate gender-related elements into the implementation of CCA activities was defined as one task in Decision No. 1055/QD-TTg [17]. However, the actual implementation still faces many challenges and needs thorough evaluation, along with the provision of funds to implement tasks.

Achievements

National Policies and Plans

Viet Nam's government has recognized the importance of GESI, as well as the severity of climate change, by enacting laws such as the Law on Gender Equality [14], the Law on Persons with Disabilities [51], and the Law on Children [52]. These legal documents all mandate the integration of gender equality and vulnerable groups into socio-economic development policies. Climate change was incorporated into the Law on Environmental Protection in 2010. By 2020, the Prime Minister issued Decision No. 1055/QD-TTg, marking a significant milestone in the plan to implement CCA across ministries, sectors, and localities. In this decision, GESI is included in both the objectives and the tasks/solutions. This provides a critical foundation for mainstreaming GESI into NAP processes. Since 2020, some national policies and plans that integrate both CCA and GESI have been issued (Table 10). These documents emphasize the importance of the participation of women and vulnerable groups in climate adaptation activities, ensuring fairness and efficiency.

Table 10. National CCA policies integrating GESI

Regulation	Implications for GESI
Decision No. 1055/QD-TTg dated July 20, 2020 [17]	The plan emphasizes that adaptation to climate change must "ensure harmony of interests, creating incentives to encourage active participation from stakeholders" while also "enhancing the resilience and adaptive capacity of communities…" "Developing female human resources and promoting gender equality in climate change adaptation" is one of tasks to deal with the proposed objectives. Three missions on labour and society directly focus on raising awareness and enhancing adaptation capacity for women and vulnerable groups. Vulnerable groups are given priority in the development of ecosystem and community-based adaptation models.
Decision No 148/QD-TTg dated January 28, 2022 [18]	The M&E indicator system specifies three gender-related indicators in the evaluation and monitoring of labour and social aspects.
Decision No, 150/QD-TTg dated January 28, 2022 [21]	Gender equality is identified as a key objective within social welfare policies, as well as in the goals and tasks related to sustainable agriculture and rural development.
Decision No. 1658/QD-TTg dated October 01, 2021 [39]	Women are prioritized in the allocation of the Green Growth budget and are explicitly included in key measures, such as improving access to green finance for women and other disadvantaged groups, and ensuring that vulnerable populations—including women, children, ethnic minorities, the poor, and persons with disabilities—have equal access to opportunities, information, technical infrastructure, and essential social services relevant to emerging sectors and jobs in the transition to a green economy.
Decision No. 90/QD-TTg dated January 18, 2022 [38]	Vulnerable groups are subjects of the program.
Decision No. 569/QD-TTg dated May 11, 2022 [40]	In the orientation for the development of social science and humanities research, "ensuring human rights, civil rights" are cited as goals, alongside: "Researching the characteristics of formation, movement and development of culture, ethnicity, religion in Viet Nam and the impact of new trends in the context of international integration; focusing on ethnic minority communities, ethnic minority and mountainous areas, disadvantaged groups in society, areas with particularly difficult natural and socio-economic conditions to ensure inclusive and harmonious development among communities."
Decision No. 385/QD-BXD dated May 12, 2022 [9]	The list of tasks includes "developing a policy mechanism to support poor households in building houses to prevent storms and floods in the central region."
Decision No. 7562/QD-BYT dated December 24, 2018 [10]	Resources: "Strengthen coordination with ministries such as the Ministry of Natural Resources and Environment, the Ministry of Agriculture and Rural Development, socio-political organizations such as the Fatherland Front, Women's Union, Farmers' Association, Youth Union…"
Decision No. 3442/QD-BNN-KH dated September 12, 2022 [2]	Indicator 24.4: "b. Number of agricultural cooperatives participating in applying climate change adaptation models/measures/practices/climate change adaptation varieties owned/led by women."

Regulation	Implications for GESI
Decision No. 342/QD-TTg dated March 15, 2022 [41]	The overall tasks and solutions include: "d) Study and complete models of safe housing and constructions that adapt to natural disaster conditions in each region, especially areas with frequent storms and floods." "dd) Prevent drought and saltwater intrusion: control and improve the efficiency of water use, storage and supply of water to areas that are frequently affected by drought." Task II.7: "Improve management capacity, relocate residents, infrastructure in areas along rivers, streams, canals, ditches, areas with frequent flooding, areas at high risk of flash floods, landslides, riverbank and coastal erosion." Task IV.1.d: "Investigate and assess response capacity, reduce losses due to natural disasters and climate change for ethnic minorities and mountainous areas." Task V.1.c: "Research the impacts of natural disasters and propose solutions to ensure sustainable livelihoods for ethnic minorities in the North Central and Central Highlands regions."
Resolution No. 81/2023/QH15 dated January 09, 2023 [56]	"At the same time, there are appropriate mechanisms, policies and resources to ensure social security and gradually develop ethnic minority and mountainous areas, border areas and islands, contributing to political stability, maintaining national defence and security…" "Proactively relocating, arranging and rearranging residential areas in areas at high risk of natural disasters and landslides." "Supporting the construction of essential infrastructure for rural areas in disadvantaged areas, ethnic minority and mountainous areas." "Comprehensively and sustainably developing ethnic minority and mountainous areas; exploiting the potential, effectively promoting the comparative advantages of the region, protecting the environment and living space of ethnic minorities. Narrow the gap in development and income between ethnic minority and mountainous areas compared to the national average." "Pay attention to investing in mountainous areas and areas with special difficulties; support and create conditions for ethnic minorities to have equal access to resources, development opportunities and fair enjoyment of basic social services." "Create livelihoods, jobs, and arrange stable and solid settlement for ethnic minorities, especially in border areas. Effectively implement programs and projects to develop the socio-economic development of ethnic minority and mountainous areas, areas with special socio-economic difficulties." "Innovating policies to attract human resources, especially scientific and technical staff for long-term work and developing local human resources in disadvantaged areas, especially in ethnic minority areas."
Decision No. 1595/QD-TTg dated December 23, 2022 [57]	Task and solution 5: "Implement solutions to filter seawater to supplement local water sources for daily life in areas regularly affected by saltwater intrusion, coastal areas, and islands." "Continue to invest in the construction of works to protect and control water sources, supply, store, and transfer water to ethnic minority areas, mountainous areas, border areas, islands, water-scarce areas, and areas greatly affected by climate change… Build and complete rural and urban water supply works, prioritizing investment in areas affected by natural disasters, ethnic minority areas, mountainous areas, border areas, and islands."

Regulation	Implications for GESI
Directive No. 1651/CT-BNN-PCTT dated January 14, 2021 [42]	Main task V.5: "Investing in the construction of works to protect and control water sources, supply and store water for ethnic minority areas, mountainous areas, border areas, islands, water-scarce areas, and areas greatly affected by climate change."
Decision No. 3444/QD-BNN-KH dated September 12, 2023 [3]	The general task states: "Encourage the replication of housing and ecological village models suitable to the climatic conditions, customs, lifestyles, and cultures of each ethnic group and locality." The specific task states: "Construct, complete and connect rural and urban domestic water supply systems, with priority given to areas with frequent natural disasters, ethnic minority areas, mountainous areas, border areas, islands, and areas with difficult conditions." "Construct, complete and connect rural and urban domestic water supply systems, with priority given to areas with frequent natural disasters, ethnic minority areas, mountainous areas, border areas, islands, and areas with difficult conditions."
Decision No 488/QD-TTg dated April 14, 2017 [43]	The proposal's overarching approach highlights the prioritization of individuals in particularly disadvantaged circumstances, including the poor and those residing in mountainous, island, and ethnic minority areas.

Source:

Specific Programs and Guidelines

Some guidelines, such as Circular No. 01/2022/TT-BTNMT and Circular No. 06/2023/TT-BTNMT, have integrated gender, requiring gender-disaggregated data collection and impact reporting to ensure that adaptation policies and programs benefit both men and women. The national-level M&E system for climate adaptation activities (Decision No. 148/QD-TTg dated January 28, 2022) includes three gender-related indicators for assessing labour and social aspects. This is a significant step in creating a legal framework to promote gender integration.

Civil social organizations, international organizations, and non-government organizations such as Women Union of Viet Nam, UNDP, UN Women, Climate Global Network, etc., have participated, provide technical and financial support to develop the legal documents. For example, gender experts from the UNDP contributed to integrating gender into the draft of Decision No. 148/QD-TTg.

Provincial Plans

In terms of integrating GESI into the national action plans, as of November 2024, the Prime Minister has approved provincial plans for the period 2021 to 2030, with a vision to 2050 for 61 provinces and cities. Among these, many have incorporated gender-related content, focusing on promoting gender equality and enhancing the role of women in socio-economic development, while ensuring equity for vulnerable groups in society.

Limitations

Many national target programs, strategies, and plans have been issued since 2020. All legal documents at the central and local levels must consult all stakeholders according to Law 17/2008/QH12 on the Promulgation of Legal Normative Documents [59]. However, very few of them are mainstream in both climate change and GESI.

GESI-related content in the provincial plans is still very general, mainly focusing on principles and orientations, with no specific measures or plans for implementing GESI in each sector. These GESI contents are more of a slogan and lack practical application in execution. This situation is also similarly reflected in local CCA plans. Furthermore, no province has issued a specific plan for integrating GESI into the implementation of the NAP.

3.4 Results Achieved in Implementing the NAP According to Evaluation Criteria and Questions

3.4.1 Results According to Criteria and Assessment Questions on Relevance

Specific objectives of the NAP include reducing disaster risks, minimizing damage, and enhancing preparedness to respond to natural disasters and extreme climate events caused by climate change. To achieve this goal, the NAP prioritizes the implementation of adaptation measures in a number of key areas, especially those with high sensitivity and vulnerability to climate change. Thus, the NAP not only focuses on short-term solutions to cope with increasing natural disasters due to climate change but also sets longer-term goals, such as strengthening institutions and mobilizing resources for adaptation.

Up to now, of the total 142 tasks set out in Decision No. 1055/QD-TTg, about 20% of the tasks have been completed, mainly in three groups of areas: strengthening state management and resources, environment and biodiversity, and water resources. About 74% of the remaining tasks continue to be implemented in the updated NAP under Decision No. 1422/QD-TTg issued on November 19, 2024. This shows the unity and relevance of the tasks in addressing climate risks and vulnerabilities in Viet Nam.

Thus, the NAP is built with the goal of addressing current climate risks while preparing “plans” for adaptation according to future climate change scenarios through specific CCA tasks. The implementation of the NAP has made efforts to reduce disaster risks and damage caused by extreme climate events. However, due to the complex and unpredictable impacts of climate change, along with the challenges of implementation, the NAP needs to continue to be implemented and updated periodically to ensure effectiveness in minimizing disaster risks and damages from extreme climate events.

3.4.2 Results According to the Criteria and Assessment Questions on Effectiveness

The implementation of the NAP has achieved significant results in improving CCA effectiveness, enhancing resilience, and enhancing the adaptive capacity of communities, economies, and ecosystems to the impacts of climate change.

Improving CCA Effectiveness Through Improved Planning and Implementation

The NAP plays a crucial role in improving planning and implementing solutions to mitigate the impacts of climate change, improving adaptation effectiveness through strengthening state management. It promotes adaptation by strengthening state management; integrating CCA solutions into development strategies, master plans, and policies; encouraging cooperation and shared responsibility; and optimizing resource mobilization and management. The NAP improves planning and implementation by providing a clear roadmap, based on scientific data and stakeholder participation, while ensuring flexibility to adapt to changes in climate change.

Improving the quality of planning and implementation of adaptation measures has contributed to enhancing the resilience of sectors and localities and ensuring sustainable development goals in the face of the increasingly complex impacts of climate change. However, ineffective coordination between ministries, sectors, and localities is a major challenge in implementing the NAP, reducing the unity and effectiveness of the plan's implementation.

Strengthening Resilience and Enhancing Adaptive Capacity of Communities, Economic Sectors, and Ecosystems

The NAP helps to strengthen resilience and enhance the adaptive capacity of communities, economic sectors, and ecosystems through the development and implementation of adaptation actions, investment in science and technology, and awareness raising. In the fields of agriculture, forestry, and fisheries, many localities have restructured crops and livestock for sustainability, applied science and technology to production, and invested in irrigation systems to minimize risks. The water resource sector has focused on measures to manage, monitor, and rationally exploit water resources, while increasing infrastructure investment to cope with drought, salinity intrusion, and water quality decline. In the transport sector, infrastructure upgrading projects, technological improvements, and management process optimization have been implemented to minimize the negative impacts of extreme weather and ensure connectivity between regions. The construction and urban sectors have focused on rational planning, developing sustainable drainage systems, and improving construction standards to respond to climate change. In industry, trade, and services, measures to closely monitor industrial activities and promote renewable energy and environmentally friendly technologies have contributed to environmental protection and sustainable economic development. The health and public health sector have been concerned with developing health infrastructure and disease warning systems, as well as raising public awareness of climate change risks. In the labour and social sectors, policies to support livelihoods for vulnerable groups and build sustainable social welfare networks have helped increase resilience to climate change impacts. In the fields of culture, sports, and tourism, planning adjustments, ecotourism development, and cultural value conservation have contributed to sustainable development and improved adaptive capacity to climate change impacts.

3.4.3 Results According to the Efficiency Criterion

The NAP was developed with a clear division of responsibilities among specialized ministries and localities, aiming to minimize overlap and facilitate the implementation, as well as M&E, of adaptation activities nationwide. Coordination among ministries, sectors, and localities in implementing the NAP in Viet Nam has achieved some goals, especially in building a legal framework and integrating it into socio-economic development plans.

However, during the implementation process, there are still limitations leading to low implementation efficiency due to a lack of policy synchronization, inadequate awareness, limited resources, and weak coordination between levels. Therefore, strengthening intersectoral coordination, policy implementation effectiveness, and the capacity and awareness of stakeholders are important goals to ensure that CCA activities achieve sustainable results.

3.4.4 Results According to the Criteria and Questions on GESI

GESI in the Ministerial and Provincial NAP Reports

Viet Nam officially recognizes the importance of integrating GESI into CCA policies. The NAP highlights GESI as a guiding principle. However, the actual implementation remains limited. According to survey data, only three out of 15 ministries and 12 out of 44 localities mentioned gender or social groups in their NAP implementation reports. Even fewer—two ministries and seven localities—clearly articulated how GESI is addressed. Contributions from the Women's Union, which could play a vital role in this domain, were mentioned in only three out of 44 localities and none of the ministries. Although 50.7% of provincial respondents in the survey indicated that their provinces had integrated GESI in some form, these efforts often lacked depth or clear implementation strategies. This highlights a gap between national intent and sub-national execution, emphasizing the need for stronger institutional and operational integration of GESI.

GESI Performance in the NAP Report

In NAP implementation reports of ministries and localities, GESI mainstreaming is primarily addressed at the level of broad commitments or guiding principles, rather than as concrete or actionable strategies. National documents, such as the NAP and various sustainable development strategies, recognize the importance of promoting GESI in CCA efforts. Legal instruments like Circular No. 01/2022/TT-BTNMT and Circular No. 06/2023/TT-BTNMT, which require gender-disaggregated data collection and impact reporting, have yielded some results.

Nevertheless, at the local level, GESI contents often referred to general terms, typically framed as a general objective to promote gender equality, without accompanying implementation plans, sectoral integration, or resource allocation. GESI-related activities at the local level are often limited to community awareness campaigns or training sessions for women and vulnerable groups, but these are usually embedded within broader environmental or disaster risk reduction programs and are not treated as core components of climate adaptation efforts.

Only a handful of provinces, such as Ca Mau, Bac Lieu, and Hanoi, have implemented targeted GESI initiatives. However, these initiatives are primarily supported by international donors and development partners, rather than being integrated into the provinces' core climate adaptation frameworks or budgets. As a result, they are limited in scope, short-term in nature, and lack sustainability, highlighting the absence of systematic institutional commitment to mainstream GESI across adaptation planning and implementation processes. Overall, the way GESI is mentioned in most NAP reports reflects a symbolic rather than substantive commitment.

Difficulties in Mainstreaming GESI into the NAP

Mainstreaming GESI into the NAP faces systemic and multidimensional challenges. First, policies on integrating GESI into the NAP lack detailed guidance, enforcement mechanisms, and sector-specific applications. While the NAP and related documents acknowledge the role of GESI, no province has developed a specific plan to operationalize it in CCA. Current legal documents acknowledge the importance of GESI, but they mainly present general principles without providing concrete tools, detailed guidance, or implementation mechanisms. The MOLISA (not the Ministry of Home Affairs) was tasked with developing specific policies and communication strategies related to GESI under the NAP framework. However, these tasks have not been carried out in practice. Second, lack of financial

resources is a major constraint. MOLISA and many provincial authorities were not allocated an adequate budget to implement GESI-related activities This makes the assigned tasks almost impossible to implement, leading to the integration of GESI being merely symbolic or given low priority during the NAP implementation process. This financial limitation seriously undermines the ability of relevant agencies to transform policy intentions into concrete actions. Third, data and capacity gaps are substantial. Most provinces lack any database on GESI in CCA. Survey results showed that 74.6% of participants were unaware of the gender indicators in Decision No. 148/QD-TTg. Finally, GESI implementation relies heavily on non-specialized staff, with little to no training in gender-responsive adaptation planning, resulting in fragmented, unsystematic, and uncoordinated efforts across sectors and regions.

Estimated Consequences of Gender and Social Exclusion

The insufficient integration of GESI into CCA policies may lead to both short- and long-term negative consequences. Vulnerable groups, particularly women, low-income communities, and ethnic minorities, are often more exposed to climate risks while having limited access to essential adaptation resources, such as early-warning systems, post-disaster recovery support, and livelihood diversification programs. Without targeted interventions, these groups remain marginalized in the adaptation process, resulting in increased vulnerability and reduced capacity to cope with climate impacts. This exclusion not only weakens their resilience but also diminishes the overall effectiveness of adaptation strategies by overlooking valuable local knowledge, community experience, and social networks. Although the NAP expresses a strong commitment to reducing vulnerability and promoting equity, current implementation practices have yet to translate these goals into concrete and inclusive actions. NAP reports from ministries and provinces indicate that the integration of GESI remains limited, with few meaningful efforts to address the specific needs of disadvantaged populations. As a result, the ongoing neglect of GESI in CCA risks deepening existing social inequalities and undermines the long-term goal of building climate-resilient communities.

Measures Should be Implemented to Improve GESI Inclusion in the NAP

Improving GESI inclusion in the NAP requires comprehensive and multi-level actions. First, from a policy perspective, gender must be treated as a standalone objective, with the issuance of national guidelines for GESI integration in CCA planning at the sectoral and local levels. These guidelines should outline responsibilities, budgeting principles, and monitoring indicators. Second, financial mechanisms need to be strengthened. Both central and provincial governments must allocate specific budgets for GESI-related adaptation activities and issue technical guidance for accessing international and domestic funding. Third, institutional capacity must be developed. Each province should designate at least one full-time GESI officer in the CCA team, and a national training framework should be established to build capacity in GESI-sensitive planning. Additionally, efforts should be made to strengthen cross-sectoral collaboration, ensuring that consideration for gender and vulnerable groups is mainstreamed into planning for agriculture, water resources, health, and infrastructure—areas most affected by climate change.

Main Findings and Recommendations

The evaluation shows that despite a strong policy narrative supporting GESI, actual integration into NAP implementation is limited, inconsistent, and lacks enforceability. Of 18 ministries and 64 provinces and cities, only a small fraction has taken concrete steps to integrate GESI, and even fewer have implemented measurable actions or indicators. Contributions from organizations like the

Women's Union remain largely confined to disaster risk reduction rather than CCA. Awareness raising and training for women are common but insufficient to address structural vulnerability. Based on these findings, the report recommends the development of binding policy instruments for GESI integration, the creation of sector-specific GESI implementation plans, and targeted financial and technical support for provinces. Strengthening the national M&E system to include enforceable gender indicators and promoting greater interministerial collaboration, especially involving the Ministry of Home Affairs, MAE, and sectoral ministries, is also key. In short, meaningful GESI integration requires a shift from aspirational language to clear mandates, institutional mechanisms, and accountability systems that ensures no group is left behind in the face of climate change.

3.4.5 Results According to the Criteria and Questions of Sustainability

Viet Nam is facing many challenges in the process of implementing and maintaining the effectiveness of the NAP. One of the biggest barriers is limited financial resources. The state budget is currently unable to meet the growing demand for climate change response activities. Mobilizing capital from the private sector still encounters many obstacles due to the lack of specific and effective incentive policies. At the same time, international aid is gradually decreasing as Viet Nam becomes a middle-income country. Most importantly, the state budget does not have a separate financial source for climate change response programs, including CCA, leading to the implementation of unsustainable adaptation activities.

In addition, implementation capacity at the local level is limited, especially in terms of experts and personnel. Currently, there are few climate change experts and most of them work part-time and have not been fully trained, leading to the implementation of adaptation programs being informal or not achieve desired effect. Different levels of organizational development and human resource capacity between localities mean that provinces with difficult economic conditions often lack the resources to implement CCA programs.

Another major challenge is the technical and technological difficulties of adapting to climate change. Technology has not been deployed evenly across regions, especially in areas such as the Northern mountainous region and the Central Highlands, where there are many challenges in accessing modern technology. Scientific and technological research products on CCA are still mainly in the pilot stage and have not been widely evaluated and deployed, meaning that the potential of technology has not been effectively exploited in this pursuit.

4.0 Difficulties and Challenges in Implementing the NAP

The implementation of Viet Nam's National Climate Change Adaptation Plan has achieved certain results. However, there are still limitations and challenges in the implementation process.

4.1 Policies and Institutions

There are no mechanisms or policies to guide localities in solving intersectoral and inter-regional CCA issues; regional linkages are still loose. There are also insufficient standards, technical regulations, or guidelines for developing and implementing CCA activities. This means that when a local authority, like in Ha Nam, tries to integrate climate change response into its economic and social development plans, solutions are mostly qualitative and lack specific, quantifiable metrics, making effective implementation and monitoring difficult. Furthermore, there are no detailed instructions on the design, structure, connection plans, and integration of the climate change databases of ministries and sectors into the national climate change database. This makes it challenging for the MAE to effectively coordinate and oversee nationwide adaptation efforts, as data may be incompatible. Although the national M&E system for CCA activities is available, it will take time to complete and strengthen staff capacity to operate smoothly. Each socio-economic region, especially those heavily affected by the impacts of climate change, that has not done so needs to develop and issue solutions and policies to adapt to climate change.

Ineffective coordination between management levels causes challenges in the coordination and implementation of adaptation solutions. The leading body in climate change response—the MAE—faces challenges in coordination and implementation. Specific M&E regulations on the effectiveness of adaptation activities are still limited, and M&E data for the effectiveness of adaptation in some ministries and localities is still incomplete, causing difficulties in management and implementation. At the local level, such as in Dong Nai, coordination between departments and sectors in implementing tasks is still weak, lacks focus, and data is not unified, making it hard to assess the real impacts of adaptation initiatives.

Solutions to adapt to climate change mostly focus on engineering solutions. Non-structural solutions and soft solutions, such as planning, planting mangrove forests, planting wave-breaking trees, urban planning, developing adaptation models, etc., although they have received attention, are still not sufficient and need to continue to be implemented.

4.2 Capacities

Climate change is a new issue, and specialized staff on climate change in ministries and localities are still lacking in both quantity and quality compared to what is needed. Human resources with expertise in climate change in sectors, especially at the provincial and district levels, are mainly part-time and have not been properly and deeply trained in their expertise, making it difficult for them to advise and implement tasks. Overall, there is a shortage of experts and technical staff specializing in climate change. In Soc Trang, the state management system for climate change is limited, with staff often

lacking specialized training, hindering their ability to provide effective advice and implement tasks. Similarly, in Tra Vinh, staff are insufficient and lack the required expertise.

As a result, state management of climate change has not met practical requirements; communication and awareness raising among people and communities on CCA have not been effective; the capacity requirements in forecasting, warning of natural disasters, scientific research, and technology to adapt to climate change have not been met; and appropriate CCA models have not been summarized and replicated at the community level. Officials and communities have focused on strengthening awareness in disaster management and CCA, but it is still limited. Many businesses, especially small and medium enterprises, do not consider CCA as part of the sustainable development strategy. At local management levels, like in Phu Tho, awareness of the importance of CCA is not enough, leading to insufficient attention to long-term tasks. At the same time, some areas are not fully equipped with knowledge and skills to proactively respond to climate change, as seen in Soc Trang.

Disaster prevention and reduction are still reactive focusing on handling situations when disasters occur—and response capacity is still slow. The processes of organizing emergency relief and overcoming consequences are still slow; in some places, there is confusion due to a lack of unified coordination; search and rescue work is still limited by to lack of equipment and professional human resources; there is no policy to encourage people to participate in natural disaster insurance; the relocation and arrangement of residents out of areas frequently affected by natural disasters are not fully implemented; and measures to prevent, combat, and limit the impact of high tides, floods, and saltwater intrusion due to rising sea levels have not met requirements. The Ministry of Transport struggles with a lack of dedicated personnel, which is a significant barrier to effective adaptation measures like enhancing the resilience of infrastructure against natural disasters.

4.3 Resources

Although the facilities and equipment for hydrometeorological and hydrological monitoring have been set up, they have not yet met actual requirements: forecasting and warning work for some types of natural disasters that occur very quickly and in a narrow range, such as localized heavy rain, tornadoes, lightning, hail, flash floods, and landslides, have not met the requirements for proactive prevention. This means that despite investments, Phu Tho still reports limited forecasting ability and challenges in disaster risk management. In addition, the infrastructure in the disaster prevention and control systems is not modern, so the resilience to climate change and natural disasters is low, creating vulnerability. Many irrigation and dike safety assurance works have degraded over time and do not meet the requirements for disaster prevention and control. Means and equipment for disaster prevention and control and search and rescue are still lacking. People's infrastructure and means of production are still poor and simple and labour productivity is low, leading to low adaptability to climate change, vulnerability, and difficulties in changing to adapt to modern adaptation solutions. The production system is unsustainable, and the structure is not suitable: infrastructure is still vulnerable to climate change and natural disasters. In Tra Vinh, investment in infrastructure and disaster prevention works is still low, making it difficult to implement CCA plans.

4.4 Finance

Investment resources for CCA in the state budget are still limited. Although there have been policies, plans, and programs developed for CCA, and efforts have been made to concentrate resources for implementation, resources from the state budget have only partially met the huge demand for investment in construction and upgrading of infrastructure for natural disaster prevention, control, and CCA. Therefore, existing works have only partially met the urgent needs of Viet Nam, especially in areas heavily affected by the impacts of climate change. The Ministry of Health reports that financial and human resources for climate change-related health programs remain limited, particularly in remote areas. Similarly, in Dong Nai, the funding allocated to climate change response activities is very limited, posing a significant barrier to project implementation.

Investment from the state budget is often implemented based on the priorities of ministries, branches, and localities, so there is little intersectoral and inter-regional cooperation, leading to unsynchronized CCA activities.

Private sector involvement in CCA is still limited. Legal barriers, a lack of financial incentives, and preferential funding mechanisms are significant obstacles preventing businesses from participating more widely in CCA activities. Furthermore, many small and medium-sized enterprises are still limited in their awareness of the importance of climate change, leading to fragmented and uncoordinated participation. Climate change adaptation activities often require large investments, with little or no direct returns, making it difficult to attract businesses to participate without other supporting policies. There are no specific policy mechanisms to attract the participation of small and medium-sized enterprises in CCA activities. In addition, access to preferential credit capital to implement adaptation measures is limited.

4.5 Technology

There is currently a lack of advanced technology in hydrometeorological monitoring, forecasting, and early-warning systems for natural disasters. The implementation of research and application of advanced technologies in CCA is still limited. Scientific and technological research products on CCA are still mainly in the pilot stage. Because they have not been widely evaluated and deployed, the potential of technology in CCA has not been effectively exploited. The MOST, despite making strides in research, has found that the technology in CCA has not reached the demands.

The application of technology has not been deployed evenly among regions, especially in areas such as the Northern mountainous region and the Central Highlands, where there are many challenges in accessing modern technology. Technology transfer between regions and sectors still lack funding and support mechanisms.

Investment in and construction of key projects to respond to natural disasters, especially river dikes, sea dikes, reservoirs, ship shelters, and landslide sites, have not yet met requirements. Solutions to improve the ability to adapt to climate change, prevent and mitigate natural disasters, strengthen capacity for forecasting and early warning of natural disasters, and replicate appropriate CCA models at the community level are still limited.

Viet Nam needs a comprehensive and synchronous strategy that focuses on improving implementation capacity, mobilizing financial resources, perfecting the legal framework, raising awareness, and promoting coordination among relevant parties. In order for Viet Nam effectively implement the NAP, achieve CCA goals, and move toward sustainable development, it will have to strengthening international cooperation, learn from the experiences of countries with similar conditions, and secure a long-term commitment from the government and the active participation of all social classes.

5.0 Lessons Learned in Implementing the National Plan for Climate Change Adaptation

5.1 Adhering to Viewpoints and Orientations

The attention and commitment of the Party and State, as well as the awareness of managers, businesses, and people, play an important role in implementing policies and actions to respond to climate change. Therefore, it is necessary to closely follow the Party's viewpoints and orientations on sustainable development and proactively respond to climate change to mainstream into the National Plan for Climate Change Adaptation for the period 2021–2030, with a vision to 2050.

The Party and State identify climate change as one of the biggest challenges affecting social stability and sustainable economic development. In addition to the Party's attention and determination, in the past, the legal system related to climate change has been developed and completed, creating a foundation for implementing climate change response activities.

Recommendations for Adhering to Viewpoints and Orientations

Foster Unified Stakeholder Commitment

Promote a unified approach by developing training programs for managers, businesses, and local communities to deepen their understanding of the Party's climate change and sustainable development policies; mobilizing public support; and ensuring that all stakeholders align their efforts with the NAP's goals, emphasizing collective responsibility for climate resilience.

Encourage Private Sector and Community Involvement

Align with the Party's viewpoint of mobilizing societal resources by creating incentives for businesses to support NAP initiatives. Engage communities through participatory programs, such as local adaptation projects, to ensure that grassroots actions reflect Party orientations and contribute to social stability and economic resilience.

5.2 Resource Mobilization and Stakeholder Participation

Mobilizing resources from stakeholders is essential to build capacity to respond to climate change. Therefore, it is necessary to identify resources and mobilization mechanisms to prioritize response activities and attract participation, especially from businesses, in the design and selection of priority programs and actions in the NAP.

In parallel with promoting global, multilateral, and bilateral international cooperation to access financial support and technology transfer, mobilizing resources and the participation of the private sector, especially from private enterprises, is extremely important.

Local authorities and grassroots mass organizations play an important role in designing and implementing climate change response and disaster risk reduction actions at the local level. Socio-political organizations and domestic and foreign non-governmental organizations (NGOs) have also

made positive contributions to supporting climate change response efforts at many levels. Therefore, it is necessary to maximize the participation of all stakeholders, especially the non-state sector.

Recommendations for Resource Mobilization

Develop Clear Resource Mobilization Mechanisms

Establish structured mechanisms to identify and prioritize resource needs for climate change response activities within the NAP. Create a centralized database to track available financial, technical, and human resources from public, private, and international sources. Introduce transparent guidelines for resource allocation, ensuring that priority programs, such as resilient infrastructure or disaster risk reduction, receive adequate funding.

Incentivize Private Sector Engagement

Design targeted incentives to attract private sector participation, particularly from businesses, in NAP programs. Offer tax exemptions, low-interest loans, or public–private partnership models for investments in green technologies, renewable energy, and climate-resilient projects. Establish a dedicated platform under the MAE to facilitate dialogue between businesses and policy-makers, ensuring private sector input in the design and selection of NAP priority actions.

Strengthen International Cooperation

Enhance global partnerships to secure financial support and technology transfer, as emphasized in the NAP. Prioritize bilateral and multilateral agreements with international organizations, such as the Green Climate Fund, to fund large-scale adaptation projects. Develop capacity-building programs to train local stakeholders in accessing and managing international resources.

Empower Local Authorities and Grassroots Organizations

Enhance the capacity of local authorities and grassroots mass organizations through training and resource support to design and implement localized climate change and disaster risk reduction initiatives. Provide technical assistance to implement community-based adaptation measures that align with NAP objectives.

Maximize Non-State Sector Contributions

Foster greater involvement of socio-political organizations, domestic and foreign NGOs, and community groups in NAP activities. Create a formal framework for collaboration, such as a national stakeholder forum, to integrate non-state actors into planning and decision-making processes. Encourage NGOs to lead awareness campaigns and pilot innovative adaptation projects, sharing best practices to scale up successful models across regions.

5.3 Promoting Science and Technology

Science and technology play a key role in CCA and must be further strengthened. It is necessary to identify CCA issues based on science and technology to propose adaptation actions and solutions associated with their development in the National Climate Change Adaptation Plan.

Viet Nam has invested in the research and application of science and technology to respond to climate change through key programs. Some scientific research results have been applied to production, such

as crop and livestock varieties adapted to climate change, production processes adapted to climate change, and development of new materials for housing and transportation infrastructure.

However, the results achieved have not yet met the requirements for responding to climate change in Viet Nam or the trend of developing science and technology to respond to climate change in the world. Most research products are in the pilot stage and have not been widely evaluated or deployed on a large scale suitable for different ecological regions and production sectors. It is necessary to further promote research, application, and transfer of climate-friendly technology in the production industries and sectors to both adapt to climate change and mitigate GHG emissions. In addition, research on climate risk assessment and management, as well as solutions to minimize loss and damage caused by climate change, must be strengthened.

Recommendations for Promoting Science and Technology

Enhance Climate Risk Assessment Research

Invest in research programs dedicated to climate risk assessment, loss and damage estimation, and solutions to minimize impacts leveraging artificial intelligence, remote sensing, and Big Data analytics. Develop advanced modelling tools and data platforms to assess climate risks at the national and regional levels, enabling evidence-based decision making. Support interdisciplinary research combining science and technology with socio-economic analysis to address complex challenges, such as coastal erosion or urban flooding, in line with NAP objectives.

Build Capacity and Infrastructure for Science and Technology

Increase funding for national programs focusing on climate adaptation and mitigation, with clear targets for scalability and impact.

Foster Multi-Sectoral Collaboration

Encourage partnerships among government, academia, private sector, and local communities to co-develop and implement science and technology solutions. Promote knowledge-sharing platforms to disseminate best practices and lessons learned from successful science and technology applications.

Foster Technology Transfer and Innovation

Promote the transfer of climate-friendly technologies by creating incentives, such as subsidies or tax breaks, for industries adopting low-carbon and climate-resilient innovations. Strengthen partnerships with international science and technology institutions and private sector entities to facilitate access to advanced technologies, such as precision agriculture tools or renewable energy systems. Establish technology transfer hubs to facilitate the integration of climate-friendly innovations into key sectors like agriculture, construction, and transportation.

5.4 Avoid Overlap and Increase Synchronization and Unity Among Sectors

Overlap and duplication between CCA priorities and sectoral activities causes dispersion and reduces the efficiency of resource use. Therefore, it is necessary to clearly define the NAP's position in the system of strategies, plans, and policies of all sectors to determine specific, feasible goals and targets

in terms of institutions, techniques, and finance for implementation, contributing to national development and proactive adaptation to climate change.

Recently, in addition to the National Strategy and Action Plan to Respond to Climate Change, Viet Nam has also issued strategies and plans on sustainable development, environmental protection, green growth, forestry, and natural disaster prevention, as well as a national green growth plan, a national action plan on environmental protection, etc. This results in resources being spread out, dispersed, and inefficient, and does not ensure focus, priority, and key points. It is now necessary to focus on unified and synchronous coordination between sectors and fields related to climate change to ensure convergence, priority, and the effective use of resources. Classifying public investment expenditures and coding budget expenditures for adaptation goals or as part of CCA is important to quantify M&E activities and facilitate and unify reporting activities.

Recommendations to Increase Synchronization and Unity

Enhance Intersectoral Coordination Mechanisms

Form a high-level, cross-ministerial task force to oversee the synchronization of climate-related strategies and plans. This body should facilitate regular consultations, joint planning, and shared accountability to minimize duplication and ensure unified resource allocation.

Standardize Budget Coding for Climate Adaptation

Implement a uniform budget coding system to classify public investment expenditures explicitly for CCA. This will improve tracking, monitoring, and evaluation of resource use, ensure transparency, and reduce inefficiencies caused by dispersed funding.

Prioritize Resource Allocation for Key Focus Areas

Conduct a prioritization exercise to identify high-impact adaptation goals and redirect resources from overlapping or low-priority activities. Use cost-benefit analyses to guide investments toward initiatives that maximize national development and climate resilience.

Streamline M&E Systems

Develop a unified reporting framework for all sectors to consolidate data on climate adaptation activities. This reduces administrative burdens and ensures consistent evaluation of progress toward NAP objectives.

Leverage Technology for Coordination

Use digital platforms to create a shared database of sectoral plans, budgets, and progress reports. This enhances transparency, reduces overlap, and supports real-time coordination among sectors.

5.5. Focusing Resources on Priority Subjects and Fields

Focusing and prioritizing resources for CCA in highly vulnerable people, sectors, fields, and areas is necessary. Once priority groups, sectors, areas, and issues are identified to include in the NAP, the necessary resources for implementation can be allocated to create spillover effects and establish convincing evidence, laying the foundation for proactive and effective adaptation to climate change.

Given Viet Nam's resource constraints and the complex impacts of climate change, it is necessary to identify priority sectors and areas, especially those that are severely affected, for focused response efforts. Furthermore, the state budget does not have a separate funding source for general climate change response programs, including CCA. Adaptation content is often identified as a co-benefit objective in projects and investment tasks. Therefore, determining the feasibility (legal, financial, and technological) of CCA activities is very important before approving projects with socio-economic development goals. Priority sectors and areas for CCA vary by sector and locality, requiring identification based on co-benefits in addition to core adaptation benefits, such as disaster prevention, water resource management, forest protection and development, renewable energy development, gender equality, employment, and poverty reduction. For key areas, such as the Mekong Delta, Central Coast, Northern mountainous region, urban areas, and vulnerable islands, priority should be given to implementing CCA solutions.

Recommendations for Focusing Resources

Conduct a Targeted Vulnerability and Prioritization Assessment

Identify and prioritize highly vulnerable groups (low-income farmers, women, ethnic minorities), sectors (agriculture, water resources, forestry), and regions (Mekong Delta, Central Coast, Northern mountainous region, urban areas, and vulnerable islands) to guide resource allocation in NAP.

Establish a Dedicated Climate Adaptation Funding Mechanism

Overcome the lack of a separate adaptation budget by creating a targeted funding mechanism for priority areas and sectors.

Strengthen Capacity for Prioritization and M&E

Build institutional and technical capacity to sustain resource prioritization and evaluate outcomes. Tailor adaptation solutions to the unique needs of priority regions and sectors, maximizing impacts and co-benefits.

5.6 Strengthening M&E Activities

To implement the M&E of CCA activities, the government has issued the national Climate Change Measurement and Evaluation system. M&E play an important role in monitoring the implementation of adaptation activities to make appropriate and timely adjustments, especially for long-term goals and targets. Therefore, it is necessary to overcome shortcomings and limitations in reporting and collecting information on the implementation of adaptation activities and the effectiveness of adaptation solutions. Performing the M&E work well will contribute to improving the effectiveness and efficiency of state management of CCA activities in Viet Nam.

Recommendations for Strengthening M&E

Enhance Data Collection and Reporting Systems

Develop standardized templates and digital platforms for consistent, timely, and accurate M&E and reporting of CCA activities across sectors. Ensure these systems are user-friendly and accessible to reduce errors and delays in data submission.

Build Capacity for M&E Implementation

Provide training programs for government officials, sectoral agencies, and local authorities on the national M&E system, focusing on data collection, analysis, and reporting. Equip staff with skills to assess the effectiveness of adaptation solutions and identify areas for improvement.

Establish Clear M&E Indicators and Metrics

Define specific, measurable, and time-bound indicators for adaptation activities to ensure consistent evaluation of progress and impact. Align these indicators with national and sectoral priorities to facilitate meaningful assessments.

Increase Funding for M&E Activities

Allocate dedicated budgets for M&E operations, including technology adoption, staff training, and data management systems. This ensures sustained resources for robust M&E efforts.

6.0 Conclusion

The Viet Nam NAP progress evaluation report provides detailed information on the implementation status of priority tasks and projects that have been and are being implemented in the NAP process by ministries, sectors, and localities. This information is essential for updating and improving the NAP process, including the M&E system.

The evaluation results show that Viet Nam has achieved some significant results in CCA through the implementation of the NAP for the period 2021–2030, with a vision to 2050. Key ministries such as the MAE, MOC, and Ministry of Health have proactively implemented tasks to effectively adapt to climate change in vulnerable sectors, such as agriculture, transport infrastructure, water resources, and public health. In addition, the active participation of other ministries, including the MOF; Ministry of Culture, Sports and Tourism; and Ministry of Industry and Trade, has demonstrated a strong determination to integrate climate adaptation into socio-economic development priorities.

The report also reveals challenges, opportunities, gaps, and lessons learned from the NAP implementation. In particular, the NAP assessment report highlights the need to strengthen intersectoral coordination, mobilize and allocate resources appropriately, and promote innovation in adaptation solutions. Building and capacity and awareness among local authorities and stakeholders is key to ensuring equitable and sustainable adaptation across the country. In particular, technology transfer and international cooperation play an important role in enhancing capacity and resources for this process. Although science and technology are identified as core elements, research, application, and transfer remain limited and uneven across localities and regions. Strengthening international cooperation to support Viet Nam in accessing financial resources and technology is essential. In addition, the NAP assessment report has highlighted the role of women and vulnerable groups; however, GESI integration into the implementation of the NAP still faces many obstacles. Currently, activities mainly focus on raising awareness rather than addressing the root causes of vulnerability. Therefore, stronger efforts are needed to ensure that GESI is integrated throughout the implementation of the NAP. Thus, to achieve CCA goals and move toward sustainable development, Viet Nam needs to strengthen coordination among its ministries, sectors, and localities, while maximizing support from the international community, promoting technology transfer, and effectively integrating GESI.

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Appendix A. Implementation Status of 142 Tasks in the National Adaptation Plan (NAP) in the Period 2021–2030, Vision to 2050 (Following Decision No. 1055/QD-TTg dated July 20, 2020, of the Prime Minister)

Table A1. Strengthening state management and resources

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
I. Improvement of mechanisms and policies						
1. Improvement of the legal system to promote climate change adaptation (CCA) activities	Develop guiding documents related to CCA	Provide guidance on the assessment of impacts, vulnerabilities, risks, losses, and damage caused by climate change	Ministry of Natural Resources and Environment (MONRE)	2023: Guidance is issued.		Completed
		Provide guidance on integrating climate change responses into strategies and planning	MONRE	2023: Guidance is issued.		Completed
	Basis for developing the Law on Climate Change	Conduct scientific and practical research, learn from international experience on climate change response, and propose the development of the Law on Climate Change	MONRE, line ministries, sectors, and localities	2025: The proposal document on the development of the Law on Climate Change is submitted.	The Law on Climate Change will be developed after the proposal is approved by competent authorities.	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
II. Monitoring and evaluation (M&E) of CCA activities						
1. Strengthen M&E of the effectiveness of adaptation activities	A set of criteria for identifying projects, tasks, and evaluating the effectiveness of CCA activities; assessing climate risks	Develop a set of criteria for assessing climate risks	MONRE, other line ministries, sectors, and localities	2022: The criteria set is submitted.		Continued in the updated NAP
		Develop criteria to identify CCA projects and tasks, and assess the effectiveness of CCA activities	MONRE, other line ministries, sectors, and localities	2021: The criteria set is issued.		Continued in the updated NAP
	M&E system for CCA activities	Set up an M&E system for CCA activities	MONRE, other line ministries, sectors, and localities	2021: The system plan is submitted for approval. 2022–2025: The system is operated.	2025–2030: Continued operation of the system; revision, supplements, and improvement of the system	Completed
III. Mobilization of resources						
1. Mobilize resources for CCA	Develop mechanisms and policies to encourage domestic and foreign organizations and individuals to invest in and support the implementation of the NAP	Develop mechanisms to mobilize resources; encourage all economic sectors to invest in CCA activities	Ministry of Planning and Investment (MPI)	2021–2025: Mechanisms and policies are issued and implemented.	2030: Continued implementation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Review, supplement, and improve mechanisms and policies to strengthen the insurance and risk-sharing system of climatic and natural disasters	Ministry of Finance (MOF)	2025: Mechanisms and policies are issued.		Continued in the updated NAP
IV. Communication and awareness raising						
1. Improve awareness and adaptation capacity	Raise awareness, enhance the capacity and knowledge of authorities at different levels, social organizations, and local communities on climate change and natural disasters	Raise awareness and build capacity on CCA and disaster risk reduction	MONRE, other line ministries, sectors, and localities	2021: The scheme is approved. 2025: The scheme is finalized, summarized, and evaluated.	Extension for the period 2026–2030	Continued in the updated NAP
V. Scientific research and technology development						
1. Develop science and technology	Strengthen scientific and technological research on CCA	Develop scientific research and apply new technologies in CCA	Ministry of Science and Technology (MOST), MONRE	2025: Studies during the period 2021–2025 are completed.	2030: Studies during the period 2026–2030 are completed.	Continued in the updated NAP
VI. International collaboration						
1. Fulfill international commitments on climate change	Develop a national report on CCA to be submitted to the UN Framework Convention on Climate Change (UNFCCC)	Develop the national report on climate change adaptation	MONRE and other relevant ministries, sectors	2024: The first report is approved.	Biennially updated	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
2. Strengthen international collaboration in the field of climate change	Strengthen cooperation with international partners in CCA	Develop and implement cooperation programs and projects with international partners on CCA in Viet Nam	MONRE and other relevant ministries, sectors	Programs and projects are developed and implemented.	Continued development and implementation	Continued in the updated NAP

Source:

Table A2. Agriculture

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
1. Enhance the agricultural sector's climate change resilience through improving the policy and legal system; training, retraining, and capacity building	Improve mechanisms and policies in agriculture to adapt to climate change	Develop guidance on vulnerability assessment, cost-benefit analysis, screening, and selection of CCA solutions for the agricultural sector	Ministry of Agriculture and Rural Development (MARD)	2022: Guidance is issued.		Continued in the updated NAP
		Innovate support mechanisms (on land, finance, technology) for enterprises involved in developing large-scale adaptation models in the agricultural sector	MARD	2022: Mechanisms and policies to support enterprises are issued.		Continued in the updated NAP
		Develop financial mechanisms and policy systems to support forestry development for CCA	MARD	2022: Mechanisms and policies are issued.		Continued in the updated NAP
		Develop a set of indicators and guidelines for integrating CCA into specific agricultural programs, projects, and activities of the agricultural sector	MARD	2023: The indicator set and guidelines for integration are issued.		Continued in the updated NAP
		Review and supplement financial and land support policies to encourage public–private partnership investment sources to develop climate-smart agriculture activities for CCA	MARD	2022: Mechanisms and policies are issued.		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Build capacity to increase resilience and reduce vulnerability to climate change	Organize training and improve the capacity of farmers and local officials on the development, selection, and application of adaptation solutions in the agricultural sector	MARD	2022: The planning and contents of the training are approved. 2025: Training for the selected regions is implemented.		Completed
		Develop regional linkages in implementing adaptation activities for agricultural sub-sectors	MARD	2022: The regional linkage mechanism for sub-sectors is issued. 2023–2025: Implementation, summary, and evaluation.		Continued in the updated NAP
		Strengthen monitoring and warning systems for natural disasters and climate change risks for agricultural activities	MARD	2021: The project is approved. 2022–2025: Implementation, summary, and evaluation.		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Develop potential and promote the advantages of irrigation work for multipurpose crops and livestock restructuring	MARD	2021: The project is approved. 2022–2025: Pilot implementation of key works.	Upscaling, completion, summary, and evaluation	Completed
2. Adjust farming plans, rationally arrange crop structure, replicate models to increase the efficiency of agricultural land use, and adapt to climate change	Deploy and upscale intercropping models to adapt to climate change in line with drought and salinity conditions	Upscale the System of Rice Intensification; intercropping of maize and beans, cassava with peanuts, beans/bambara groundnut; integrated coffee farming; model intensive farming of fruit trees according to Viet Namese Good Agricultural Practices (VietGAP/VGP) for CCA	MARD	2021: The project is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP
		Apply science and technology, advanced technology, mechanization, automation, and advanced, sustainable intensive farming processes for CCA in ecological regions	MARD	2021: The project is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP
		Apply and implement integrated farming models (rice-shrimp, rice-fish, rice-duck, rice in combination with the reuse of by-products for fertilizer or energy production) to adapt to climate change on rice field ecosystems	MARD	2021: The project is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Completed
		Support the application of agroforestry solutions for fruit tree cultivation to improve the livelihoods and CCA capacities of people in Northwest Viet Nam	MARD	2025: Upscaling, summary, and evaluation		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Replicate crop cultivation models of intercropping and intensive farming to adapt to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
	Improve the efficiency of agricultural land use	Evaluate the effectiveness of rice cultivation land and convert inefficient rice fields into land for cultivating fruit trees, vegetables, mixed farming models (rice combined with aquaculture, rice/vegetables, and fruit trees or crops for animal feeding) with high economic efficiency suitable for each ecological region	MARD	The evaluation report is published.		Continued in the updated NAP
	Arrange a crop structure that is suitable for regional comparative advantages and markets to move toward CCA	Identify crop structure for CCA	MARD	Crop structure for different agricultural regions is identified.		Continued in the updated NAP
		Transform crop structure in accordance with regional comparative advantages and markets to work toward CCA (agroforestry, agro-fishery, priority for large-scale commodity production, chain production, increasing added value)	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
3. Enhance crop resilience to diseases	Develop and breed crop varieties that are resilient to pests and diseases	Develop advanced production models (synchronous application of irrigation systems, integrated nutrient management, use of disease-free seedlings, varieties of export advantages, intensive cultivation management, and use of environment-friendly preventive measures for diseases)	MARD	Models are piloted on a large scale and evaluated.		Continued in the updated NAP
		Analyze and select high-quality rice varieties with high salinity resilience that are resistant to brown-backed rice plant hoppers and suitable for the coastal delta affected by salinity intrusion for CCA; improve soybeans with enhanced resilience to climate change using the CRISPR/Cas9 gene editing technique; produce raw sugarcane in arid regions of South Central and Central Highlands	MARD	New rice varieties are created, piloted, and evaluated.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Evaluate and select silkworm varieties that are resistant to hot, humid weather conditions to sustainably contribute to stabilizing the efficient development of mulberry cultivation and silkworm rearing	MARD	New varieties of silkworms are selected, piloted, and evaluated.		Continued in the updated NAP
4. Improve disease prevention for livestock breeds in the context of climate change	Implement measures to prevent and control epidemics/diseases and use livestock breeds that can adapt to climate change	Strengthen activities to control epidemics/diseases and environmental pollution; improve veterinary services to develop sustainable livestock production to adapt to climate change and exploit the advantages of ecological regions	MARD	Veterinary control and service activities are applied throughout the livestock production process.		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Replicate the use of highly resilient local poultry and waterfowl varieties that can adapt well to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Shift scattered and small-scale livestock production to concentrated farming models that are synchronously invested with breeding facilities, (suitable) environmental conditions, and advanced breeding technology to improve adaptability and added value	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
	Implement and replicate livestock production models that can adapt to climate change	Replicate breeding models with improved breeding facilities and apply advanced technology for CCA	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Develop livestock production models that link the improvement of livestock breeds, breeding technology, consumption markets (domestic, export-oriented), and waste treatment in accordance with ecological conditions	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Apply integrated models according to the value chain: high-tech breeding, biosecurity, Integrated Food Energy System combining livestock production with energy generation, ecosystem-based animal husbandry, livestock production according to VietGAP's standards, climate-smart agriculture/livestock production	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Replicate the model of using green fodder for cows and other ruminants in the context of climate change	MARD	The model is applied in livestock facilities, then reviewed and evaluated.		Continued in the updated NAP
5. Ensure the efficiency of fisheries and aquaculture through improving methods, techniques, and infrastructure to adapt to climate change	Strengthen highly effective forms of fisheries and aquaculture that can adapt to climate change	Replicate the multi-species, multi-layered aquaculture model with biosafety and biosecurity for CCA	MARD	The model is applied to livestock facilities, then reviewed and evaluated.		Continued in the updated NAP
		Replicate the model of shrimp farming under the canopy of mangrove forests inside dike systems (MSH) to adapt to climate change and the model of rice-shrimp farming system in areas with complete irrigation systems	MARD	The model is applied to livestock facilities, then reviewed and evaluated.		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Structural shift to boats and ships with appropriate capacity, upgrade fishing technologies with high efficiency to adapt to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in key provinces	Upscaling, summary, and evaluation	Continued in the updated NAP
		Restructuring between fishing, aquaculture, and aquatic resource protection, service development for aquaculture	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		Develop chain-linked models in aquaculture, including improvement of varieties, feeding, pond technologies, disease/epidemic control, market development, and pond environment treatment	MARD	Prepare the technical and managerial basis for the development of the project.	2026: The project is approved. 2027–2030: Upscaling, summary, and evaluation	Completed
	Invest in the construction of fishery infrastructure	Continue investing in constructing infrastructures in fishing ports, fishing wharves, and storm shelters for ships and boats in coastal areas of the Mid-Central and the Southeast of Viet Nam	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Develop new species with high resistance to climate change, breeding technologies suitable for each ecological region and adapting to climate change	MARD	Pilot implementation	Upscaling, summary, and evaluation	Completed
	Implement and promote epidemic/disease prevention for aquaculture	Strengthen aquatic veterinary services; strictly control, forecast, and promptly warn of epidemics/diseases, environmental issues and extreme weather to minimize risks to aquaculture	MARD	Veterinary control and service activities are applied throughout the entire aquaculture process.		Continued in the updated NAP
6. Strengthen forest protection and management, and improve forest quality to adapt to climate change	Strengthen forest management and protection	Develop a national forestry master plan for the period 2021–2030, with a vision to 2050	MARD	2022: The plan is submitted for approval.		Continued in the updated NAP
		Implement measures to prevent and fight forest fires, control pests and diseases, limit desertification, and conserve forest biodiversity	MARD	Solutions are piloted, evaluated, and implemented.	Completion, summary, and evaluation	Continued in the updated NAP
	Develop and improve the quality of forests through forest regeneration measures, restoration, and enrichment; change plant structure	Develop and implement projects to strengthen forest protection and management, as well as improve forest quality	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Completed

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Implement projects for afforestation and rehabilitation of mangrove forests in coastal areas	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Research, select, and develop new varieties of forest trees that can adapt to climate change in ecological regions to reduce the risk of deforestation and forest degradation	MARD	New varieties are selected, created, and evaluated.	Upscaling, summary, and evaluation	Completed
7. Increase community participation in forest development through improving livelihoods and employment opportunities in forestry	Support and encourage communities to participate in sustainable forestry development	Replicate the mangrove ecosystem restoration model in degraded aquaculture lagoons to support community-based forestry and fisheries	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Support the development of forest-based community livelihood models to support CCA	MARD	The model is piloted, implemented, and evaluated.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Implement incentive mechanisms for participation in REDD+ in forest and forest land management	MARD	Incentive mechanisms are implemented and reviewed.		Completed

Source:

Table A3. Natural disaster prevention

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
1. Improve readiness to respond to climate change-induced disasters	Strengthen the capacity of climate change monitoring, hydro-meteorological observation, forecasting, warning, and informing of natural disasters to proactively respond to climate change	Develop a nationwide monitoring system for climate change and sea level rise	MONRE	2021: The project is approved. 2022–2025: The project is implemented and finalized.	Maintain operation of the system	Continued in the updated NAP
		Modernize the system of hydrometeorological observation and monitoring of salinity intrusion	MONRE	2021: The project is approved. 2022–2025: Project implementation	Maintain operation of the system	Continued in the updated NAP
		Modernize the technology of hydrometeorological forecasting; forecast and early warning of natural disasters, extreme weather, and climate events	MONRE	2021: The project is approved. 2022–2025: Project implementation	Completion, summary, and evaluation	Continued in the updated NAP
		Implement a global framework for climate services in Viet Nam serving socio-economic sectors and fields, as well as natural disaster prevention	MONRE	2021: The project is approved. 2022–2025: Project implementation	Completion, summary, and evaluation	Continued in the updated NAP
		Strengthen disaster information transmission capacity; ensure adequate, accurate and timely information transmission for natural disaster prevention and control	Ministry of Information and Communications (MIC), MARD, MONRE, Voice of Viet Nam, Vietnamese television	2021: The project is approved. 2022–2025: Project implementation	Completion, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Strengthen the safety level of the system of irrigation works for natural disaster prevention	Develop irrigation and disaster prevention planning for the period 2021–2030, with a vision to 2050	MARD	2022: The plan is submitted for approval.		Completed
		Invest in developing a disaster early warning system for reservoirs to proactively respond to climate change	MARD	2021: The project is approved. 2025: The project is completed.		Continued in the updated NAP
		Review and evaluate the safety level of the system of irrigation works and natural disaster prevention	MARD	2022: The report on the safety level of the system of irrigation works and natural disaster prevention is published.		Continued in the updated NAP
		Develop flood maps and prepare flood control plans for downstream areas of key reservoirs in case of emergency, i.e., flood discharge and dam failure	MARD	2021: The project is approved. 2025: Maps and flood control plans for flood discharge and dam failure in key reservoirs are published.		Continued in the updated NAP
		Invest in constructing, repairing, and upgrading reservoirs, dike systems, and natural disaster prevention works that are highly vulnerable to climate change impacts	MARD	2021: The project is approved. 2022–2025: Pilot investment into certain key structures.	Completion, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Strengthen and construct key and critical natural disaster prevention and control structures	MARD	2021: The project is approved. 2022–2025: Pilot investment in certain key structures.	Completion, summary, and evaluation	Continued in the updated NAP
2. Improve the disaster risk management system	Identify, zone, and forecast disaster risk levels	Review and update the disaster risk levels	MONRE	2022: The review and update of the natural disaster risk levels are approved.	Review and update the disaster risk levels	Continued in the updated NAP
		Define risk zones and warn of disaster risks for planning and management of disaster prevention, as well as climate change response	MONRE	2022: The results of risk zoning and disaster risk warning are announced.	Define risk zones and warn of disaster risks for planning and management of disaster prevention, as well as climate change response	Continued in the updated NAP
	Strengthen capacity and management measures and promote disaster risk reduction	Develop a disaster prevention plan; identify natural disaster response and remedial measures at all levels	MARD	2021: The plan for disaster prevention is approved. 2025: Summary and evaluation.		Continued in the updated NAP
		Develop community-based disaster risk management using local knowledge of disaster prevention	MARD	2021: The project is approved. 2025: Pilot implementation in some key works.	Upscaling, summary, and evaluation	Completed
		Review, evaluate, deploy, and replicate the community-based disaster prevention model	MARD	2021: Summary and review of the models. 2022–2025: Replication	Upscaling, summary, and evaluation	Completed

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Build capacity for search and rescue forces	MARD	2021: The project is approved. 2022–2025: Pilot implementation in some key structures.	Upscaling, summary, and evaluation	Continued in the updated NAP
3. Minimize damages caused by natural disasters	Improve capacity to prevent and combat natural disasters and extreme weather events	Strengthen the capacity to prevent flash floods and landslides in the affected areas, especially the Northern mountainous areas	MARD	2021: The project is approved. 2022–2025: Pilot implementation in some key works.	Upscaling, summary, and evaluation	Unsure
		Strengthen the capacity to prevent typhoons, floods, and extremely severe floods in river basins nationwide	MARD	2021: The project is approved. 2022–2025: Pilot implementation in certain key structures.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Develop a plan to prevent harm and damage from drought, storm surges, and salinity intrusion	MARD	2021: The plan is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP
	Propose solutions to address climate change losses and damages	Evaluate climate change losses and damages	MONRE	2021: The project is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP
		Implement solutions to share climate risks and reduce climate change losses and damages	MONRE	2021: The project is approved. 2022–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Strengthen measures to prevent landslides along riverbanks and coastlines	Investigate and identify causes, and propose solutions to prevent subsidence and landslides along riverbanks and coastlines in the Mekong Delta	MONRE	2021: The project is approved. 2025: Summary and review.		Completed
		Strengthen and construct anti-landslide works in key and critical areas	MARD	2021: The project is approved. 2022–2025: Urgent works are constructed.	Investment according to the roadmap; completion, summary, and evaluation	Continued in the updated NAP
	Strengthen construction measures to cope with increasing drought and salinity intrusion	Review, construct, and upgrade irrigation systems in estuarine and vulnerable areas to cope with drought, sea level rise, and saltwater intrusion	MARD	2021: The project is approved. 2022–2025: Urgent works are constructed.	Investment according to the roadmap; completion, summary, and evaluation	Continued in the updated NAP
		Construct a number of large reservoirs in areas highly prone to drought to store water for agricultural cultivation in the context of climate change	MARD	2021: The project is approved. 2025: Urgent works are constructed.	Investment according to the roadmap; completion, summary, and evaluation	Continued in the updated NAP

Source:

Table A4. Environment and biodiversity

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
1. Improve the adaptability of natural ecosystems and biodiversity	Strengthen the management of ecosystems and biodiversity	Develop a map of climate change risk zoning for different natural ecosystems	MONRE	2021: The project is approved. 2023: Completion, summary, and evaluation		Unsure
	Enhance the resilience of natural ecosystems; protect and conserve biodiversity in the context of climate change and sea level rise	Build biodiversity conservation models in high biodiversity areas that are vulnerable to climate change	MONRE	2022: The project is approved. 2023–2025: Replication of the models	Upscaling	Continued in the updated NAP
		Assess the risks and control invasive alien species in the context of climate change	MONRE	2023: The project is approved. 2023–2025: Implementation	Continued implementation, summary, and evaluation	Continued in the updated NAP
		Establish rescue zones, peripheral conservation, rearing, and propagation of endangered species	MONRE	2023: The project is approved. 2024–2025: Implementation	Continued implementation, summary, and evaluation	Unsure
		Recover degraded key natural ecosystems	MONRE	2021: The project is approved. 2022–2025: Implementation	Continued implementation, summary, and evaluation	Completed
	Develop ecosystem-based and community-based adaptation models	Apply adaptation community-based measures to conserve and ensure the sustainable use of biodiversity, with priority given to conserving precious genetic resources, endangered species, and important ecosystems	MONRE	2023: The project is approved. 2023–2025: Implementation	Continued implementation, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Use local people's knowledge in conservation and sustainable use of biodiversity, ensuring sustainable livelihoods, prioritizing vulnerable communities	MONRE	2024: The project is approved.	2025–2030: Implementation, summary, and evaluation	Completed

Source:

Table A5. Water resources

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
1. Minimize the impacts of climate change on water resources	Improve the effectiveness of water resources management in the context of climate change	Develop a national strategy on water resources to 2030, with a vision to 2050	MONRE	2022: National strategy is submitted for approval.		Continued in the updated NAP
		Develop a master plan on water resources for the period 2021–2030, with a vision to 2050	MONRE	2021: The plan is submitted for approval.		Completed
		Build integrated planning of interprovincial river basins and water sources	MONRE	2023: Plans are submitted for approval.		Continued in the updated NAP
		Review and adjust the inter-reservoir operating procedures for river basins	MONRE, MARD, Ministry of Information and Technology (MOIT)	2025: 100% of the operating procedures of inter-reservoir/single reservoir are issued.		Continued in the updated NAP
	Enhance water resources monitoring and protection	Complete the system of national water resources monitoring and observation	MONRE	2021: The project is approved. 2025: Completion, summary, and evaluation		Continued in the updated NAP
		Identify areas where underground water exploitation is restricted, especially in the Mekong Delta	Provincial and municipal People's Committee	2025: Completion		Continued in the updated NAP
		Restore and develop protection forests and mangroves to protect water sources and prevent erosion along riverbanks and coastlines	MARD and provincial and municipal People's Committees	2021: The project is approved. 2022–2025: Implementation	Continued implementation, summary, and evaluation	Completed

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Improve water storage capacity and water use efficiency	Investigate, evaluate, and develop comprehensive solutions for water storage based on the natural trends of each region	MONRE	2021: The project is approved. 2022–2025: Implementation	Completion, summary, and evaluation	Continued in the updated NAP
		Classify water scarcity, propose water storage and water saving measures, apply water exploitation and use restrictions according to respective water scarcity levels	MONRE, provincial and municipal People's Committees	2021: The project is approved. 2025: Completion, summary, and evaluation		Completed
		Investigate, evaluate, and identify the solution to artificial groundwater recharge for the Mekong Delta, Southern Central, and Central Highlands in order to improve the efficiency of groundwater resources use in sustainable ways in the context of climate change	MONRE, MARD	2022: The project is approved. 2025: Completion, summary, and evaluation		Completed
		Develop, implement, and upscale models of economical and efficient water use	MARD, Ministry of Construction (MOC), provincial and municipal People's Committees	2021: The project is approved. 2022–2025: Pilot implementation	Review, upscaling, summary, and evaluation	Continued in the updated NAP
		Construct additional water storage projects; exploit and use water sources in the context of increasing droughts due to climate change	MARD, provincial and municipal People's Committees	2021: The project is approved. 2022–2025: Pilot implementation	Review, upscaling, summary, and evaluation	Continued in the updated NAP

Source:

Table A6. Infrastructure

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
I. Transportation						
1. Improve policies, systems of strategies, and planning for the transport sector	Review, formulate, and complete strategies, planning, mechanisms, and policies for the transport sector to promote CCA	Update and develop strategies and plans based on climate change scenarios, with an emphasis on sectors and regions vulnerable to the negative impacts of climate change	MOT	2022: Strategies and plans are approved.		Completed
		Review, formulate, and complete a system of standards, codes, and technical guidelines for road, railway, and waterway transport infrastructure construction to adapt to climate change	MOT	2023: The standards, codes, and technical guidelines are updated, completed, and issued.		Continued in the updated NAP
2. Improve resilience to climate change through measures for transport infrastructure improvement	Implement programs and projects to upgrade and renovate transport structures in areas often threatened by natural disasters and vulnerable to climate change	Upgrade, improve, and construct road and waterway transport infrastructure in areas often threatened by floods and sea level rise, particularly the Mekong Delta	MOT, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Upgrade, improve, and construct road traffic structures that are resistant to landslides in the Northern mountainous areas and the Central Highlands	MOT, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
II. Construction – urban						
1. Improve policies and planning for construction and urban areas	Review, formulate, and complete construction standards and urban standards to respond to natural disasters in the context of climate change and sea level rise	Review, adjust, and formulate new standards and codes for the construction of houses and public works in regions prone to natural disasters	MOC	2023: Standards, codes are developed, completed, and issued.		Continued in the updated NAP
		Review, adjust, and build new standards and codes for the construction of technical infrastructure for water supply, drainage, and solid waste disposal in accordance with updated scenarios of climate change and sea level rise	MOC	2023: Standards and codes are issued.		Continued in the updated NAP
		Review, update, and adjust the legal documents related to CCA in the construction sector	MOC	2022: The legal documents are updated, adjusted, and issued.		Completed
		Adjust the construction planning of interprovincial regions, economic zones, and high-tech zones to adapt to climate change	MOC	2023: Adjusted planning is approved.		Unsure
		Integrate CCA factors into the formulation, appraisal, and approval of coastal urban planning projects approved by the Prime Minister	MOC	2025: Coastal urban planning integrated with climate change is approved.		Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Complete technical guidelines on the construction of technical infrastructure works to cope with urban flooding (levelling, drainage, retention basins, dikes, etc.)	MOC, provincial and municipal People's Committees	2022: Technical guidance is issued.		Continued in the updated NAP
2. Improve resilience to climate change through measures for improving infrastructure in the construction sector and urban areas	Implement programs and projects to improve the resilience capacity of infrastructure systems, industrial zones, coastal and island resettlement areas	Planning of urban areas and land use, infrastructure, industrial zones, coastal and island resettlement areas based on sea level rise scenarios	MOC	2023: The plan is approved.		Unsure
		Investment, relocation, and rearranging of residential areas in regions frequently hit by typhoons, storm surges, floods, riverbank and coastline erosion, or at risk of flash floods and landslides	MOC	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
	Implement programs and projects to improve urban flood control capacity in the context of climate change and sea level rise	Implement flood-proofing solutions for big cities	Provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for key cities	Upscaling, summary, and evaluation	Continued in the updated NAP
		Urgently complete flood-proofing works under construction in Ho Chi Minh City; supplement additional solutions to gradually form an effective and synchronized flood-proofing system	People's Committee of Ho Chi Minh City	Flood-proofing works are completed. Additional solutions are proposed.		Completed

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Implement flood-proofing solutions for the core area of Can Tho City	People's Committee of Can Tho City	Flood-proofing solutions are completed, summarized, and evaluated.		Completed
		Implement effective water supply solutions for urban and industrial areas in regions directly affected by drought, saltwater intrusion, and sea level rise	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Completed
	Continue to implement programs and projects for developing and building natural disaster-proof houses in the context of climate change and sea level rise	Build houses that are safe from typhoons and floods for urban areas in the North Central and South Central regions	Provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		Pilot and invest in technical solutions to cope with floods due to heavy rain, storm surge, and sea level rise in urban areas along the Central Coast	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in key cities.	Upscaling, summary, and evaluation	Continued in the updated NAP
		Pilot and invest in technical solutions to prevent flash floods and landslides for residential clusters in mountainous areas	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in regions.	Upscaling, summary, and evaluation	Continued in the updated NAP
	Apply new technologies, sustainable materials of high resistance for urban housing projects	Implement projects applying new technologies using sustainable materials of high resistance to climate change in construction and urban areas	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in regions.	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
III. Industry, trade, and energy						
1. Improve policies and planning of industry, trade, and energy	Review and evaluate mechanisms and policies on industry, trade, and energy in the context of international economic integration to adapt to climate change	Assess international trade policies, technical barriers related to climate change and propose solutions	MOIT	2022: Evaluation reports and proposals are approved.		Continued in the updated NAP
2. Strengthen industrial and energy infrastructure systems to improve resilience to climate change	Upgrade and renovate energy facilities and works in coastal areas	Develop and implement plans to upgrade and renovate power plants, power transmission stations, electrical substations, fuel piping systems, mines, coal fields, and other energy facilities in coastal areas	MOIT, provinces	2021: The plan is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
	Improve industrial production capacity	Improve material supply chains, diversify sources of supply and alternative sources for climate-sensitive materials	MOIT	2021: The scheme is approved. 2022–2025: Implementation, summary, and evaluation		Unsure

Source:

Table A7. Public health, labour, society, culture, sports, tourism

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
I. Public health						
1. Complete policies in the health sector and public health	Review, formulate, and improve mechanisms and policies of the health sector	Review, revise, develop, and supplement legal documents, mechanisms, and policies of the health sector on the protection of public health in the context of climate change	Ministry of Health (MOH), related ministries, and sectors	2023: Legal documents and policies are issued.		Continued in the updated NAP
2. Improve community resilience; reduce vulnerability to climate change impacts	Implement investment projects; develop infrastructure for the health sector and public health	Develop a health care network to meet requirements on the prevention of epidemics, diseases, and newly arising diseases due to climate change impacts	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		Develop infrastructure to ensure environmental sanitation; implement technological and equipment solutions in the prevention and treatment of diseases related to climate change	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Unsure
		Strengthen the monitoring and early warning system for climate change impacts on health	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
	Deploy, build, and replicate models to improve community resilience and CCA	Build and upscale models of management and monitoring of epidemics related to changes in weather and climate	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
		Build and upscale models of environmental sanitation and clean water for CCA in communities and health facilities	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		Build and upscale models of nutrition, food, infectious diseases, non-communicable diseases; apply environment-friendly technologies, renewable technologies and use clean energy for community and health facilities to adapt to climate change	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
II. Labour – society						
1. Complete a system of policies and capacity building for vulnerable people to limit climate change impacts on people's employment opportunities and gender equality	Promote integration of climate change and sea level rise in employment policies	Complete employment policies to promote the creation of green and sustainable jobs	Ministry of Labor, Invalids, and Social Affairs (MOLISA) and provinces	2022: The policies are enacted.		Continued in the updated NAP
		Develop policies to promote integration, create green jobs and support job transfer; develop sustainable livelihoods for people, especially workers who need to convert their land-use purpose or who are affected by climate change, environmental incidents, and disasters	MOLISA and provinces	2023: The policies are enacted.		Continued in the updated NAP
		Develop specific policies to support vulnerable people; mainstream gender into the implementation of CCA activities	MOLISA and provinces	2023: The policies are enacted.		Task abandoned due to irrelevance

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Build capacity for women, develop female human resources to participate in CCA	Formulate a communications plan to promote green growth, including "Gender and Climate Change" and "Gender Equality in Climate Change Response"	MOLISA and provinces	2021: The plan is approved. 2022–2025: Piloting in different fields.	Upscaling, summary, and evaluation	Task abandoned due to irrelevance
		Provide soft skills training for female workers to join new economic sectors to support CCA	MOLISA and provinces	2021: The scheme is approved. 2022–2025: Piloting in different fields.	Upscaling, summary, and evaluation	Continued in the updated NAP
III. Culture, sports, and tourism						
1. Improve the resilience capacity of tourist sites, cultural heritage, and historical relics	Strengthen the capacity to cope with climate change in the field of culture	Formulate a project on maintenance and conservation of cultural relics in the context of climate change, with a focus on maintenance and conservation of cultural relics	Ministry of Culture, Sports and Tourism (MOCST), provinces	2023: The scheme is approved. 2024–2025: Implementation	Upscaling, summary, and evaluation	Continued in the updated NAP
	Improve the ability to exploit tourism activities in the context of climate change	Review and adjust the planning of tourist areas and resorts to adapt to climate change	MOCST, provinces	2023: The plan is approved.		Completed
		Strengthen capacity to cope with climate change in the field of tourism, with special focus on tourist areas and attractions	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Completed
		Upgrade and improve the infrastructure system, cultural and historical relics/works, and sports arenas to enhance resilience to climate change and build suitable tourism products that can adapt to climate change	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP

Adaptation needs	Objectives	Tasks	Implementing agency	Periodic results		Status
				By 2025	By 2030	
	Preserve and promote traditional culture and local knowledge in CCA	Build and replicate models for stabilizing cultural and spiritual life for local communities in the process of resettled agriculture and resettlement under the impacts of climate change to protect grassroots cultural institutions; preserve and promote traditional cultural values and local knowledge in adapting to climate change	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		General inventory, collection, research of local knowledge on adaptation and response to climate change; dissemination of local knowledge in the community, with a focus on the role of artisans and the development of community-based adaptation models	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP
		Improve the capacity of local officials to protect and promote intangible cultural values in the context of climate change with local knowledge	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions	Upscaling, summary, and evaluation	Continued in the updated NAP

Source:

Appendix B. Comparison of NAP Tasks Continued in the Updated NAP (Decision No. 1055/Qd-Ttg and Decision No. 1422/Qd-Ttg)

Table B1. Comparison of NAP tasks continued in the updated NAP (Decision No. 1055/Qd-Ttg and Decision No. 1422/Qd-Ttg)

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Conduct scientific and practical research, learn from international experience on climate change response, and propose the development of the Law on Climate Change	Ministry of Natural Resources and Environment (MONRE), line ministries, sectors, and localities	2025: The proposal document on the development of the Law on Climate Change is submitted. By 2030: The Law on Climate Change will be developed after the proposal is approved by competent authorities.		X	X	• Reduce the implementing agencies to only MONRE. • 2025: The proposal document on the development of the Law on Climate Change is submitted. • 2026–2030: The Law on Climate Change will be developed after the proposal is approved by competent authorities.
Develop the criteria set for assessing climate risks	MONRE, other line ministries, sectors, and localities	2022: The criteria set is submitted.	X	X	X	• Adjust the task name to: Build a set of indicators to assess vulnerability and risks due to climate change. • The implementing agency is now solely MONRE. • 2025: The criteria set is submitted.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Develop criteria to identify climate change adaptation (CCA) projects and tasks, and assess the effectiveness of CCA activities	MONRE, other line ministries, sectors, and localities	2021: The criteria set is issued.	X	X	X	• Adjust the task name to: Build a set of criteria for identifying CCA projects and tasks. • The implementing agency is now solely MONRE. • 2024–2025: Complete the development of the set of criteria.
Develop mechanisms to mobilize resources and encourage all economic sectors to invest in CCA activities	Ministry of Planning and Investment (MPI)	2021–2025: Mechanisms and policies are issued and implemented. 2030: Continued implementation			X	• 2024–2025: Complete mechanism construction.
Review, supplement, and improve mechanisms and policies to strengthen the insurance and risk-sharing system of climatic and natural disasters	MOF	2025: Mechanisms and policies are issued.	X			• Adjust the task name to: Review, supplement, and improve mechanisms and policies to strengthen climate and disaster risk sharing and insurance systems. • Develop mechanisms and policies to promote financial and credit services, and develop a climate risk insurance market.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Raise awareness and build capacity on CCA and disaster risk reduction	MONRE, other line ministries, sectors, and localities	2021: The scheme is approved. 2025: The scheme is finalized, summarized, and evaluated. By 2030: Extension for the period of 2026–2030	X		X	• Adjust the task name to: Develop and implement a project to raise awareness and enhance the capacity for adaptation of climate change and disaster risk reduction for all levels of government, social organizations, and communities. • 2024–2025: The scheme is developed and approved. • 2026–2030: The scheme is finalized, summarized, and evaluated.
Develop scientific research and apply new technologies in CCA	Ministry of Science and Technology (MOST), MONRE	2025: Studies during the period 2021–2025 are completed. 2030: Studies during the period 2026–2030 are completed.	X		X	• Adjust the task name to: Organize the implementation of basic research so that Viet Nam has a number of core technologies in CCA. • 2024–2025: Implement pilot projects. • 2026–2030: Continue to implement, summarize, and evaluate.
Develop the National Report on Climate Change Adaptation	MONRE and other relevant ministries, sectors	2024: The first report is approved and updated biennially.	X		X	• Adjust the task name to: Develop and periodically update the Biennial Transparency Report, the National Adaptation Plan, the National Communication, and other national reports on climate change. • 2024–2030: Reports are developed periodically.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Develop and implement cooperation programs and projects with international partners on CCA in Viet Nam	MONRE and other relevant Ministries, sectors	By 2025: Programs and projects are developed and implemented. By 2030: Continued development and implementation			X	• 2024–2030: Programs and projects are built according to roadmaps and international cooperation requirements.
Develop guidance on vulnerability assessment, cost-benefit analysis, screening, and selection of CCA solutions for the agricultural sector	Ministry of Agriculture and Rural Development (MARD)	2022: Guidance is issued.			X	• 2024–2025: Complete guidance.
Innovate support mechanisms (on land, finance, technology) for enterprises involved in developing large-scale adaptation models in the agricultural sector	MARD, MPI	2022: Mechanisms and policies to support enterprises are issued.			X	• 2024–2025: Complete the development and reform of support policy mechanisms.
Develop financial mechanisms and policy systems to support forestry development for CCA	MARD	2022: Mechanisms and policies are issued.			X	• 2024–2025: Complete the development of the mechanism.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Develop a set of indicators and guidelines for integrating CCA into specific agricultural programs, projects, and activities of the agricultural sector	MARD	2023: The indicator set and guidelines for integration are issued.			X	• 2024–2025: Complete the development of guidelines and indicators.
Review and supplement financial and land support policies to encourage public–private partnership investment sources to develop climate-smart agriculture activities for CCA	MARD	2022: Mechanisms and policies are issued.			X	• 2024–2025: Complete the review and supplementation of policies.
Develop regional linkages in implementing adaptation activities for agricultural sub-sectors	MARD	2022: The regional linkage mechanism for sub-sectors is issued. 2023–2025: Implementation, summary, and evaluation			X	• 2024–2025: Pilot implementation. • 2026–2030: Continue to implement, summarize, and evaluate.
Strengthen monitoring and warning systems for natural disasters and climate change risks for agricultural activities	MARD	2021: The project is approved. 2022–2025: Implementation, summary, and evaluation			X	• 2024–2025: Continue to implement, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Upscale the System of Rice Intensification; intercropping of maize-bean, cassava with peanuts, beans/bambara groundnut; integrated coffee farming; model of intensive farming of fruit trees according to Viet Namese Good Agricultural Practices (VietGAP/VGP) for CCA	MARD	2021: The project is approved. 2022–2025: Implementation By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement. • 2026–2030: Scale up, summarize, and evaluate.
Apply science and technology, advanced technology, mechanization, automation and advanced, sustainable intensive farming processes for CCA in ecological regions	MARD	2021: The project is approved. 2022–2025: Implementation By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement. • 2026–2030: Scale up, summarize, and evaluate.
Support the application of agroforestry solutions for fruit tree cultivation to improve the livelihoods and CCA capacities of people in Northwest Viet Nam	MARD	2025: Upscaling, summary, and evaluation			X	• 2024–2025: Continue to implementation. • 2026–2030: Complete, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Replicate crop cultivation models of intercropping and intensive farming to adapt to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions. By 2030: Upscaling, summary, and evaluation	X	X	X	• 2024–2025: Continue to implementation. • 2026–2030: Complete, summarize, and evaluate. • Adjust the task name to: Scale up intercropping and intensive cultivation methods for climate-resilient crop varieties across regions. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement pilot projects for regions and localities. • 2026–2030: Scale up, summarize, and evaluate.
Evaluate the effectiveness of rice cultivation land and convert inefficient rice fields into land for cultivating fruit trees, vegetables, mixed farming models (rice combined with aquaculture, rice/vegetables, fruit trees or crops for animal feeding) with high economic efficiency, suitable for each ecological region	MARD	By 2025: The evaluation report is published.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Complete, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Identify the crop structure for CCA	MARD	By 2025: Crop structure for different agricultural regions is identified.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Complete, summarize, and evaluate.
Identify the crop structure for CCA	MARD	By 2025: Crop structure for different agricultural regions is identified.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Crop structure for different agricultural regions is identified. • 2026–2030: Implement, summarize and evaluate.
Transform the crop structure in accordance with regional comparative advantages and markets to support CCA (agroforestry, agro-fishery, priority for large-scale commodity production, chain production, increasing added value)	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement pilot projects for regions and localities. • 2026–2030: Scale up, summarize, and evaluate.
Develop advanced production models (synchronous application of irrigation systems, integrated nutrient management, use of disease-free seedlings, varieties of export	MARD	By 2025: Models are piloted on a large scale and evaluated.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Models are developed and piloted. • 2026–2030: Upscaling, summary, and evaluation.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
advantages, intensive cultivation management and use of environment-friendly preventive measures for diseases)						
Analyze and select high-quality rice varieties with high salinity resilience that are resistant to brown-backed rice plant hoppers and suitable for the coastal delta affected by salinity intrusion for CCA; improve soybeans with enhanced resilience to climate change by CRISPR/Cas9 gene editing technique; production of raw sugarcane in arid regions of South Central and Central Highlands	MARD	By 2025: New rice varieties are created, piloted and evaluated. By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies • 2024–2025: New rice varieties are created, piloted and evaluated • 2026–2030: Upscaling, summary, and evaluation.
Evaluate and select silkworm varieties that are resistant to hot, humid weather conditions, which contributes to stabilizing the efficient development of mulberry cultivation and silkworm rearing in a sustainable way.	MARD	By 2025: New varieties of silkworms are selected, piloted, and evaluated.			X	• 2024–2025: New varieties of silkworms are selected and piloted. • 2026–2030: Upscaling, summary, and evaluation.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Strengthen activities to control epidemics/diseases, and environmental pollution; improve veterinary services to develop sustainable livestock production to adapt to climate change and exploit the advantages of the ecological region	MARD	By 2025: Veterinary control and service activities are applied throughout the livestock production processes.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Disease control and environmental pollution in livestock farming are brought under control. • 2026–2030: Disease control, environmental pollution control, and veterinary services are implemented throughout the entire livestock farming process.
Replicate the use of highly resilient local poultry and waterfowl varieties that can adapt well to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.
Shift scattered and small-scale livestock production to concentrated farming models, which are synchronously invested with breeding facilities, (suitable) environmental conditions, and advanced breeding technology to improve adaptability and added value	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue implementing pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Replicate breeding models with improved breeding facilities and apply advanced technology for CCA	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Develop adaptive and linked models in livestock farming from the stages of livestock breed improvement, farming technology, consumption market (domestic, export-oriented), and waste treatment in accordance with ecological conditions. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Implement pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.
Develop livestock production models that have linkages among the improvement of livestock breeds, breeding technology, consumption markets (domestic, export-oriented), and waste treatment in accordance with ecological conditions	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Develop adaptive and linked models in livestock farming from the stages of livestock breed improvement, farming technology, consumption market (domestic, export-oriented), and waste treatment in accordance with ecological conditions. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Implement pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Apply integrated models according to the value chain (high-tech breeding, biosecurity, Integrated Food Energy System combining livestock production with energy generation, ecosystem-based animal husbandry, livestock production according to VietGAP's standards, climate-smart agriculture/livestock production)	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Develop adaptive and linked models in livestock farming from the stages of livestock breed improvement, farming technology, consumption market (domestic, export-oriented), and waste treatment in accordance with ecological conditions. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Implement pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.
Apply integrated models according to the value chain (high-tech breeding, biosecurity, Integrated Food Energy System combining livestock production with energy generation, ecosystem-based animal husbandry, livestock production according to VietGAP's standards, climate-smart agriculture/livestock production)	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.

NAP (Decision No. 1055/QD-TTg)			Updated NAP (Decision No.1422/QD-TTg)			
Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Replicate the model of using green fodder for cows and other ruminants in the context of climate change	MARD	By 2025: The model is applied in livestock facilities, then reviewed and evaluated.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: The model is applied to livestock facilities. • 2026–2030: Upscaling, summary, and evaluation.
Replicate the multi-species, multi-layered aquaculture model with biosafety and biosecurity for CCA	MARD	By 2025: The model is applied to livestock facilities, then reviewed and evaluated.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: The model is applied to livestock facilities. • 2026–2030: Upscaling, summary, and evaluation.
Replicate the model of shrimp farming under the canopy of mangrove forests inside dyke systems to adapt to climate change and the model of rice-shrimp farming system in areas with complete irrigation systems	MARD	By 2025: The model is applied to livestock facilities, then reviewed and evaluated.	X		X	• Adjust the task name to: Transition crop structures to adapt to climate change in areas affected by drought and salinity intrusion; develop sustainable rice-shrimp farming systems, shrimp farming under mangrove forests to adapt to climate change; mixed rice-shrimp farming models adapted to climate change; shift seasonal structures to develop an efficient, sustainable, and climate-resilient rice production sector. • 2024–2025: The model is applied to livestock facilities. • 2026–2030: Upscaling, summary, and evaluation.

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Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Structural shift of boats and ships with appropriate capacity, upgrading fishing technologies with high efficiency to adapt to climate change	MARD	2021: The project is approved. 2022–2025: Pilot implementation in key provinces By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to implement pilot projects in key provinces. • 2026–2030: Scale up, summarize, and evaluate.
Restructure fishing, aquaculture, aquatic resource protection, and service development for aquaculture	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue implementing pilot projects for regions. • 2026–2030: Scale up, summarize, and evaluate.
Continue investing in constructing infrastructures in fishing ports, fishing wharves, and storm shelters for ships and boats in coastal areas of the Mid-Central and the Southeast of Viet Nam	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Continue investing in the construction of infrastructure for fishing ports, wharves, and storm shelters for vessels in the coastal areas of the Central and Southeast regions. • 2024–2025: Continue to implement pilot projects in key provinces. • 2026–2030: Continue and complete investments, summarize, and evaluate.

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Strengthen aquatic veterinary services, strictly control, forecast, and promptly warn of epidemics/diseases, environmental issues and extreme weather to minimize risks to aquaculture	MARD	By 2025: Veterinary control and service activities are applied throughout the aquaculture process.			X	• 2024–2025: Aquaculture veterinary services, forecasting, and disease warning for aquaculture are implemented. • 2025–2030: Veterinary service activities and disease warning forecasting are applied throughout the entire aquaculture process.
Develop a national forestry master plan for the period of 2021–2030, with a vision to 2050	MARD	2022: The plan is submitted for approval.			X	• 2024: The plan is submitted for approval.
Implement measures to prevent and fight forest fires, control pests and diseases, limit desertification, and conserve forest biodiversity	MARD	By 2030: Completion, summary, and evaluation	X		X	• Adjust the task name to: Enhance and complete the forest fire monitoring, assessment, and emergency response system. • 2024–2025: The forest fire monitoring, assessment, and emergency response system is completed.
Implement projects for afforestation and rehabilitation of mangrove forests in coastal areas	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Implement afforestation projects, prioritizing headwater forests, coastal forests, and large timber forests. • Adjust implementing agency to People's Committees of provinces and cities. • 2024–2025: Continue to implement pilot projects for different regions. • 2026–2030: Scale up, summarize, and evaluate.

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Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Replicate the mangrove ecosystem restoration model in degraded aquaculture lagoons to support community-based forestry and fisheries	MARD	2021: The project is approved. 2022–2025: Pilot implementation in different regions By 2030: Upscaling, summary, and evaluation		X	X	• Change the implementation unit to the People's Committees of provinces and cities. • 2024–2025: Continue to implement pilot projects for different regions. • 2026–2030: Scale up, summarize, and evaluate.
Support the development of forest-based community livelihood models to support CCA	MARD	By 2025: The model is piloted, implemented, and evaluated. By 2030: Upscaling, summary, and evaluation			X	• 2024–2025: The model is piloted, implemented, and evaluated.
Develop a nationwide monitoring system for climate change and sea level rise	MONRE	2021: The project is approved. 2022–2025: The project is implemented and finalized. By 2030: Maintain operation of the system	X		X	• Adjust the task name to: Develop a climate change and sea level rise monitoring system across the entire territory and territorial waters of Viet Nam. • 2024–2025: Complete the system investment project. • 2026–2030: Operate, supplement, and improve the system.
Modernize the system of hydrometeorological observation and monitoring of salinity intrusion	MONRE	2021: The project is approved. 2022–2025: Project implementation By 2030: Maintain operation of the system			X	• 2024–2025: Continue to implement investment projects. • 2026–2030: Complete the monitoring system according to the plan and conduct a review and evaluation.

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Modernize the technology of hydrometeorological forecasting and early warning of natural disasters and extreme weather and climate events	MONRE	2021: The project is approved. 2022–2025: Project implementation By 2030: Completion, summary, and evaluation	X		X	• Adjust the task name to: Modernize meteorological and hydrological forecasting technology; forecast and provide early warnings of natural disasters and extreme weather and climate phenomena; apply advanced and modern forecasting technology; prioritize the development of quantitative rainfall forecasting technology, flash flood and landslide warnings, and impact-based forecasting. • 2024–2025: Continue to implement investment projects. • 2026–2030: Continue implementation and achieve the goals according to the sector's development strategy.
Implement a global framework for climate services in Viet Nam serving socio-economic sectors and fields, and natural disaster prevention	MONRE	2021: The project is approved. 2022–2025: Project implementation By 2030: Completion, summary, and evaluation			X	• 2024–2025: Implement. • 2026–2030: Achieve the goals according to the sector's development strategy.

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Strengthen disaster information transmission capacity; ensure adequate, accurate, and timely information transmission for natural disaster prevention and control	MIC, MARD, MONRE, Voice of Viet Nam, Vietnamese television	2021: The project is approved. 2022–2025: Project implementation By 2030: Completion, summary, and evaluation	X	X	X	• Adjust the task name to: Invest in the expansion of ground satellite communication stations, mobile communication equipment, and the satellite-based fishing vessel management system; enhance communication capacity to ensure the full, accurate, and timely transmission and dissemination of climate and disaster information to all provincial and municipal People's Committees, citizens nationwide, and vessels operating at sea. • Adjust implementing agencies to include Ministry of Information and Communications, People's Committee of provinces, and cities. • 2024–2025: Continue to implementation • 2026–2030: Complete, summarize, and evaluate.
Invest in developing a disaster early-warning system for reservoirs to proactively respond to climate change	MARD	2021: The project is approved. 2025: The project is completed.		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Implement pilot projects for high-risk reservoirs. • 2026–2030: Expand the application to all reservoirs and summarize and evaluate.

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Review and evaluate the safety level of the system of irrigation works and natural disaster prevention	MARD	2022: The report on the safety level of the system of irrigation works and natural disaster prevention is published.	X	X	X	• Adjust task name to: Review and evaluate the safety level of irrigation, hydroelectric, and natural disaster prevention systems. • Add the MOIT as the implementing agency. • 2024–2025: Complete the review and assessment.
Develop flood maps and prepare flood control plans for downstream areas of key reservoirs in case of emergency, i.e., flood discharge and dam failure	MARD	2021: The project is approved. 2025: Maps and flood control plans for flood discharge and dam failure in key reservoirs are published.			X	• 2024–2025: Complete construction of flood maps; flood prevention and control plans are prepared and approved..
Invest in constructing, repairing, and upgrading reservoirs, dike systems, and natural disaster prevention works that are highly vulnerable to climate change impacts	MARD	2021: The project is approved. 2022–2025: Pilot investment into certain key structures By 2030: Completion, summary, and evaluation	X	X	X	• Adjust the task name to: Invest in the construction, repair, and upgrade to ensure the safety of reservoirs, river dike systems, sea dikes, and disaster prevention infrastructure that are at high risk of damage due to the impacts of climate change. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to pilot investment in certain key structures. • 2026–2030: Complete, summarize, and evaluate.

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Strengthen and construct key and critical natural disaster prevention and control structures	MARD	2021: The project is approved. 2022–2025: Pilot investment in certain key structures By 2030: Completion, summary, and evaluation		X	X	• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to pilot investment in certain key structures. • 2026–2030: Complete, summarize, and evaluate.
Review and update the disaster risk levels	MONRE	2022: The review and update of the natural disaster risk levels are approved. By 2030: Review and update the disaster risk levels.			X	• 2024–2025: Complete review and update natural disaster risk level classification.
Define risk zones and warn of disaster risks for planning and management of disaster prevention, as well as climate change response	MONRE	2022: The results of risk zoning and disaster risk warning are announced. By 2030: Define risk zones and warn of disaster risks for planning and management of disaster prevention, as well as climate change response.	X		X	• Adjust the task name to: Define risk zoning and disaster risk warning tasks, develop natural disaster warning maps for planning, direct and administer natural disaster prevention and control, and adapt to climate change. • 2024–2025: Completing risk zoning and warning of natural disaster risks in the service of planning, directing, and administering natural disaster prevention and control, and adapting to climate change.

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Develop a disaster prevention plan; identify natural disaster response and remedial measures at all levels	MARD	2021: The plan for disaster prevention is approved. 2025: Summary and evaluation	X	X	X	• Adjust the task name to: Develop and implement disaster prevention and control plans; identify disaster response measures, community-based disaster risk management, and disaster recovery at all levels. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Complete the development of plans and implement them at all levels. • 2026–2030: Continue to implement plans and measures to prevent and overcome consequences and review and evaluate.
Build capacity for search and rescue forces	MARD	2021: The project is approved. 2022–2025: Pilot implementation in some key structures By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Strengthen the capacity of search and rescue forces at all levels, ensure security, politics, social order and safety in natural disaster situations. • 2024–2025: Prioritize strengthening search and rescue capacity for high-risk areas. • 2026–2030: Complete the strengthening of search and rescue capacity for all levels and regions.

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Strengthen capacity to prevent typhoons, floods, and extremely severe floods in river basins nationwide	MARD	2021: The project is approved. 2022–2025: Pilot implementation in certain key structures By 2030: Upscaling, summary, and evaluation		X		• Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to deploy for key regions. • 2026–2030: Complete, summarize, and evaluate.
Develop a plan to prevent harm and damage from drought, storm surges, and salinity intrusion	MARD	2021: The plan is approved. 2022–2025: Implementation By 2030: Upscaling, summary, and evaluation			X	• 2024–2025: The plan is developed and approved. • 2026–2030: The plan is implemented and evaluated.
Evaluate climate change losses and damages	MONRE	2021: The project is approved. 2022–2025: Implementation By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Assess climate change impact, vulnerability, loss and damage. • Supplementing units of relevant ministries and People's Committees of provinces and cities. • 2024–2030: Assessment reports to be developed periodically.
Implement solutions to share climate risks and reduce climate change losses and damages	MONRE	2021: The project is approved. 2022–2025: Implementation By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Assess climate risk and implement solutions for climate risk sharing, loss and damage mitigation due to climate change. • 2024–2025: Research and pilot implementation of solutions. • 2026–2030: Replicate the application of solutions and review and evaluate.

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Strengthen and construct anti-landslide works in key and critical areas	MARD	2021: The project is approved. 2022–2025: Urgent works are constructed. By 2030: Investment according to the roadmap; completion, summary, and evaluation	X		X	• Adjust the task name to: Consolidate and build riverbank and coastal landslide prevention works in key and critical areas; the area of serious landslides, complicated developments. • 2024–2025: Complete the survey, propose solutions. • 2026–2030: Implementation of solutions.
Review, construct, and upgrade irrigation systems in estuarine areas and vulnerable areas to cope with drought, sea level rise, and saltwater intrusion	MARD	2021: The project is approved. 2022–2025: Urgent works are constructed. By 2030: Investment according to the roadmap; completion, summary, and evaluation	X	X	X	• Adjust the task name to: Review, build, and upgrade the system of irrigation works, prioritizing works in estuaries and vulnerable areas to respond to typhoons, floods, droughts, sea level rise and saltwater intrusion. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to deploy for key regions • 2026–2030: Complete, summarize, and evaluate.

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Construct a number of large reservoirs in areas highly prone to drought to store water for agricultural cultivation in the context of climate change	MARD	2021: The project is approved. 2025: Urgent works are constructed. By 2030: Investment according to the roadmap; completion, summary, and evaluation	X	X	X	• Adjust the task name to: Build and develop the system of irrigation works, building a number of large and multipurpose reservoirs in the service of water supply and agricultural production in the conditions of climate change. • Add the People's Committees of provinces and cities as implementing agencies. • 2024–2025: Continue to deploy for key regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Build biodiversity conservation models in high biodiversity areas that are vulnerable to climate change	MONRE	2022: The project is approved. 2023–2025: Replication of the models By 2030: Upscaling	X	X	X	• Adjust the task name to: Build and develop community-based biodiversity conservation models to adapt to climate change. • Add the People's Committees of provinces and cities as implementing agencies. • 2025–2026: Implementation. • 2027–2030: Scale up, summarize, and evaluate.

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Assess the risks and control invasive alien species in the context of climate change	MONRE	2023: The project is approved. 2023–2025: Implementation By 2030: Continued implementation, summary, and evaluation	X		X	• Adjust the task name to: Assess the risks and propose a plan to control the invasion of alien species under the impact of climate change. • 2025–2026: Complete the evaluation report.
Apply adaptation community-based measures to conserve and ensure sustainable use of biodiversity, with priority given to conserving precious genetic resources, endangered species, and important ecosystems	MONRE	2023: The project is approved. 2023–2025: Implementation By 2030: Continued implementation, summary, and evaluation	X		X	• Adjust the task name to: Assess breeding activities to conserve endangered, precious and rare species prioritized for protection at conservation establishments, propose solutions for breeding and conserve a number of priority species, improve/restore habitats, and pilot the re-release of populations into the wild. • 2025: Implementation. • 2026–2030: Scale up, summarize, and evaluate.
Develop a national strategy on water resources to 2030, with a vision to 2050	MONRE	2022: National strategy is submitted for approval.			X	• 2024: National strategy is submitted for approval.
Develop a master plan on water resources for the period 2021–2030, with a vision to 2050	MONRE	2021: The master plan is submitted for approval.			X	• 2024: The master plan is submitted for approval.

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Review and adjust the inter-reservoir operating procedures for river basins	MONRE, MARD, Ministry of Information and Technology (MOIT)	2025: 100% of the operating procedures of inter-reservoir/single reservoir are issued.	X	X		• Adjust the task name to: Review and adjust 11 inter-reservoir operation processes on the river basins to make them real-time. • The implementing agency is only the MONRE.
Complete the system of national water resources monitoring and observation	MONRE	2021: The project is approved. 2025: Completion, summary, and evaluation			X	• 2024–2030: Continue to implement, complete, summarize, and evaluate.
Identify areas where underground water exploitation is restricted, especially in the Mekong Delta	Provincial and municipal People's Committee	2025: Completion	X	X	X	• Adjust the task name to: Determination of restricted zones for groundwater exploitation, thresholds for groundwater exploitation for areas, proposing the application of measures to store water, regulate the distribution of water sources, use water economically and efficiently, limit water exploitation and use, and deal with water resource depletion at each level of water scarcity. • Supplement the MONRE as the implementing agency. • 2024–2025: Completion.

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Investigate, evaluate, and develop comprehensive solutions for water storage based on natural trends of each region	MONRE	2021: The project is approved. 2022–2025: Implementation By 2030: Completion, summary, and evaluation	X		X	• Adjust the task name to: Investigate, assess, and develop overall solutions on water storage based on the natural trends of each region, prioritize areas at risk of drought, water shortage, and affected by saltwater intrusion.. • 2024–2025: Continue to implementation. • 2026–2030: Complete, summarize, and evaluate.
Develop, implement, and upscale models of economical and efficient water use	MARD, Ministry of Construction (MOC), provincial and municipal People's Committees	2021: The project is approved. 2022–2025: Pilot implementation By 2030: Review, upscaling, summary, and evaluation		X	X	• Adjust implementing units of the MONRE . • 2024–2025: Continue to pilot and implement. • 2026–2030: Summarize and replicate; review and evaluate.

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Construct additional water storage projects, exploit and use water sources in the context of more frequent droughts due to climate change	MARD, provincial and municipal People's Committees	2021: The project is approved. 2022–2025: Pilot implementation By 2030: Review, upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Build a number of new freshwater storage works for domestic water supply and production in the conditions of climate change, prioritize areas at risk of drought and water scarcity. • Supplement the People's Committees of provinces and cities as implementing units • 2024–2025: Continue to deploy for key regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Review, formulate, and complete a system of standards, codes, and technical guidelines for road, railway, and waterway transport infrastructure construction to adapt to climate change	Ministry of Transportation (MOT)	2023: The standards, codes, and technical guidelines are updated, completed, and issued.	X		X	• Adjust the task name to: Review, develop, and complete the system of standards, regulations and technical guidelines on the construction of road, railway, and waterway transport infrastructure, considering the impacts of climate change in the long term. • 2024–2030: Complete the review, development and completion of standards and regulations.

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Upgrade, improve, and construct road and waterway transport infrastructure in areas often threatened by floods and sea level rise, particularly the Mekong Delta	MOT, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation			X	• 2024–2025: Continue to deploy in key areas/according to approved planning and plans. • 2026–2030: Scale up, complete, summarize, and evaluate.
Upgrade, improve, and construct road traffic structures that are resistant to landslides in the Northern mountainous areas and the Central Highlands	MOT, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation			X	• 2024–2025: Continue to deploy in key regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Review, adjust, and formulate new standards and codes for the construction of houses and public works in regions prone to natural disasters	MOC	2023: Standards, codes are developed, completed, and issued.			X	• 2024–2025: Complete the review and development of standards and regulations.
Review, adjust, and build new standards and codes for the construction of technical infrastructure for water supply, drainage, and solid waste disposal in accordance with updated scenarios of climate change and sea level rise	MOC	2023: Standards and codes are issued.			X	• 2024–2025: Complete the review and development of standards and regulations.

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Integrate CCA factors into the formulation, appraisal, and approval of coastal urban planning projects approved by the Prime Minister	MOC	2025: Coastal urban planning integrated with climate change is approved.			X	• 2024–2025: Implement pilot projects. • 2026–2030: Continue to implement, summarize and evaluate.
Complete technical guidelines on the construction of technical infrastructure works to cope with urban flooding (levelling, drainage, retention basins, dikes, etc.)	MOC, provincial and municipal People's Committees	2022: Technical guidance is issued.			X	• 2024–2025: Complete the development of the guide.
Invest in, relocate, and rearrange residential areas in regions frequently hit by typhoons, storm surges, floods, riverbank and coastline erosion or at risk of flash floods and landslides	MOC	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation		X	X	• Adjust the implementing agency to the MARD, People's Committees of provinces and cities. • 2024–2025: Continue to deploy to high-risk areas. • 2026-2030: Complete, summarize, and evaluate.

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Implement flood-proofing solutions for big cities	Provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for key cities By 2030: Upscaling, summary, and evaluation				• Adjust the task name to: Implementation of flood control solutions for large urban areas of provinces and cities. • 2024–2025: Solutions implemented for key areas. • 2026–2030: Complete the implementation for urban areas and review and evaluate.
Build houses that are safe from typhoons and floods for urban areas in the North Central and South Central regions	Provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Build typhoon- and flood-safe houses for the North Central, South Central. and Southern regions. • 2024–2025: Continue to deploy to high-risk areas. • 2026–2030: Complete, summarize, and evaluate.
Pilot and invest in technical solutions to cope with floods due to heavy rain, storm surge, and sea level rise in urban areas along the Central Coast	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in key cities By 2030: Upscaling, summary, and evaluation		X	X	• Modify the implementation unit to the People's Committees of the central coastal provinces and cities. • 2024–2025: Solutions implemented and piloted. • 2026–2030: Completing solutions, expanding scale, and summarizing and evaluating.

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Pilot and invest in technical solutions to prevent flash floods and landslides for residential clusters in mountainous areas	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in regions By 2030: Upscaling, summary, and evaluation			X	• 2024–2025: Continue to implement pilot projects for different regions. • 2026–2030: Complete, summarize, and evaluate.
Implement projects applying new technologies, using sustainable materials of high resistance to climate change in construction and urban areas	MOC, provincial and municipal People's Committees	2021: The scheme is approved. 2022–2025: Pilot implementation in regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Implement projects to apply advanced refrigeration technologies and solutions using new, sustainable, and highly resilient materials to mitigate climate change in the construction and urban sectors. • 2024–2025: Continue to deploy for regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Assess international trade policies and technical barriers related to climate change and propose solutions	MOIT	2022: Evaluation reports and proposals are approved	X		X	• Adjust the task name to: Review and evaluate mechanisms and policies of the industry, energy and trade in the context of international economic integration to adapt to climate change. • 2024–2025: Complete the review and evaluation of mechanisms and policies.

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Tasks	**Implementing agency**	**Implementing time frame**	**Adjustments to task content**	**Revisions and additions to implementing entities**	**Specification/ revision of implementation time frame**	**Notes**
Develop and implement plans to upgrade and renovate power plants, power transmission stations, electrical substations, fuel piping systems, mines, coal fields, and other energy facilities in coastal areas	MOIT, provinces	2021: The plan is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Guide the formulation and direction of the implementation of the plan to upgrade and renovate power plants, power transmission stations, substations, power transmission line systems, fuel pipeline systems, mines, coal yards and other energy facilities in coastal areas. • 2024–2025: Continue to deploy to key regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Review, revise, develop, and supplement legal documents, mechanisms and policies of the health sector on the protection of public health in the context of climate change	Ministry of Health (MOH), related ministries, and sectors	2023: Legal documents and policies are issued	X		X	• Adjust the task name to: Review, amend, develop, and supplement mechanisms and policies of the health sector on public health protection in the context of climate change. • 2024–2025: Complete the review, formulation, and supplementation of mechanisms and policies.

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Develop a health care network to meet requirements on the prevention of epidemics, diseases, and newly arising diseases due to climate change impacts	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Develop the health care network, give priority to ethnic minority communities, deep-lying and remote areas to meet the requirements of epidemic prevention and control, diseases and new diseases arising from the impacts of climate change. • The implementing agency is the MOH, People's Committees of provinces and cities. • 2024–2025: Continue to deploy for key regions. • 2026–2030: Scale up, complete, summarize, and evaluate.
Strengthen the monitoring and early warning system for climate change impacts on health	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Investment in the development of a system for monitoring and early warning of the impacts of climate change on health. • The implementing agency is the MOH, People's Committees of provinces and cities. • 2024–2025: Review the existing monitoring system for monitoring and early warning of the impacts of climate change on health. • 2026–2030: System development, scale-up.

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Build and upscale models of management and monitoring of epidemics related to changes in weather and climate	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation		X	X	• The implementing agency is the MOH, People's Committees of provinces and cities. • 2024–2025: Develop and pilot models. • 2026–2030: Replicate, summarize, and evaluate.
Build and upscale models of environmental sanitation and clean water to support CCA for communities and health facilities	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Build and replicate models of environmental sanitation and clean water to adapt to climate change for communities and health facilities, focusing on rural, mountainous, and coastal areas, especially areas affected by typhoons and floods, drought, and saltwater intrusion. • The implementing agency is the MOH, People's Committees of provinces and cities. • 2024–2025: Develop and pilot models. • 2026–2030: Replicate, summarize, and evaluate.

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Build and upscale models of nutrition, food, infectious diseases, non-communicable diseases; apply environment-friendly technologies, renewable technologies and use clean energy for community and health facilities to adapt to climate change	MOH, related ministries and sectors, and provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation				• The implementing agency is the MOH, People's Committees of provinces and cities. • 2024–2025: Develop and pilot models. • 2026–2030: Replicate, summarize, and evaluate.
Complete employment policies to promote the creation of green and sustainable jobs	Ministry of Labor, Invalids, and Social Affairs (MOLISA), provinces	2022: The policies are enacted.			X	• 2024–2025: Complete the formulation and completion of policies.
Develop policies to promote integration, create green jobs and support job transfer, and develop sustainable livelihoods for people, especially workers who need to convert their land-use purpose or who are affected by climate change, environmental incidents, and disasters	MOLISA, provinces	2021: The scheme is approved. 2022–2025: Piloting in different fields By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Develop and train soft skills for female workers and youth to participate in new economic sectors in the direction of CCA. • 2024–2025: Develop documents, implement pilot projects. • 2026–2030: Upscaling, summary, and evaluation.

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Formulate a project on maintenance and conservation of cultural relics in the context of climate change, with a focus on maintenance and conservation of cultural relics	Ministry of Culture, Sports and Tourism (MOCST), provinces	2023: The scheme is approved. 2024–2025: Implementation By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Formulate a scheme on the restoration and preservation of cultural and historical relics, considering the conditions of climate change and focusing on the maintenance and conservation of cultural relics. • 2024–2025: Development, approval, and implementation of the project. • 2026–2030: Expand the scale of implementation, review and evaluation.
Upgrade and improve the infrastructure system, cultural and historical relics/works, and sports arenas to enhance resilience to climate change and build suitable tourism products that can adapt to climate change	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Upgrade and renovate the system of infrastructure, tourism and sports works to improve resilience to climate change, focusing on tourist areas and attractions and building tourism products to adapt to climate change. • 2024–2025: Continue to deploy for regions. • 2026–2030: Scale up, complete, summarize, and evaluate.

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Tasks	Implementing agency	Implementing time frame	Adjustments to task content	Revisions and additions to implementing entities	Specification/ revision of implementation time frame	Notes
Build and replicate models for stabilizing cultural and spiritual life for local communities in the process of resettled agriculture and resettlement under the impacts of climate change to protect grassroots cultural institutions; preserve and promote traditional cultural values and local knowledge in adapting to climate change	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Build and replicate models of stabilizing the cultural and spiritual life of local communities in the process of resettlement and settlement under the impact of climate change to protect grassroots cultural institutions. • 2024–2025: Research, implement pilot projects of models. • 2026–2039: Continue to replicate, summarize, and evaluate.
General inventory, collection, and research of local knowledge on adaptation and response to climate change; dissemination of local knowledge in the community, with a focus on the role of artisans and the development of community-based adaptation models	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X	X	X	• Adjust the task name to: Apply, disseminate, and replicate local knowledge in adaptation to climate change. • Further adjustment of implementing agencies and individuals, including the MOCST, officials, People's Committees of provinces and cities. • 2024–2025: Investigate, document development, and implement pilot projects. • 2026–2030: Continue to implement, replicate, summarize, and evaluate.

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Improve the capacity of local officials to protect and promote intangible cultural values in the context of climate change with local knowledge	MOCST, provinces	2021: The scheme is approved. 2022–2025: Piloting for regions By 2030: Upscaling, summary, and evaluation	X		X	• Adjust the task name to: Improve the capacity of local officials to protect and promote the value of tangible cultural heritage, intangible cultural heritage, and documentary heritage in the face of the impacts of climate change using local knowledge. • 2024–2025: Research and develop documents; implement pilot training. • 2026–2030: Complete the content; upscale, summarize, and evaluate.
Total			**47**	**46**	**102**	

Source: Authors

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