MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT

**DEPARTMENT OF CLIMATE CHANGE**

**SUMMARY REPORT**

# ASSESSING THE IMPLEMENTATION OF THE NATIONAL STRATEGY AND ACTION PLAN ON CLIMATE CHANGE, PROPOSING MEASURES TO ACCELERATE THE IMPLEMENTATION OF THE STRATEGY FOR PERIOD 2021 – 2030

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| **Project owner:** | Department of Climate Change |
| **Sponsor:** | Agency of French Development (AFD) |
| **Implementing organisation:** | Center for Consultancy, Training and Services on environment and natural resources (CTSEN) |

**Ha Noi, June 2020**

## INTRODUCTION

On December 5, 2011, the Prime Minister approved National Strategy on Climate Change by Decision 2139/QD-TT. The strategy has set a common objective, 4 specific objective and 10 task groups. Subsequently, on October 5, 2012, the National Action Plan on Climate Change for the period of 2012-2020 was also issued in Decision 1474/QD-TTg of the Prime Minister to implement the tasks of the Strategy, specifically in the 2012-205 period, 10 key programs and prioritized projects were implemented and in the 2012-2020 period, 65 programs, projects and tasks related to climate change were carried out.

From 2011 to the present, the situation in the world and in Vietnam has changed a lot. Climate change is getting stronger and stronger, affecting economic, social and environmental development. The challenges of environmental resource degradation, economic recession,... still exist in the world. The Covid 19 epidemic broke out in early 2020, causing a major impact on all aspects of human life worldwide. The Paris Agreement on Climate Change was adopted in 2015, and the Agenda for Sustainable Development to 2030 was implemented by countries. Vietnam continues the intensive international integration process, preparing to enter a new stage of development, 2021-2030 with many opportunities and challenges intertwined. Therefore, in order to have a basis for promoting the implementation of the National Strategy on Climate Change in the new period in accordance with the orientation of domestic policies and international commitments on climate change, the assessment of the implementation situation since the promulgation of the Strategy Combs so far are essential.

In this context, the Ministry of Natural Resources and Environment (MONRE) received a technical assistance (TA) from French Development Cooperation Agency (AFD) to carry out a project "Assessment of the implementation of the National Strategy on Climate Change during the period 2011-2020 and propose measures to accelerate the implementation of the Strategy for the period 2021-2030". Department of Climate Change (DCC) under MONRE is the project owner and Center for Consulting, Training and Natural Resources Services (CTSEN) is the implementing agency. Implementation of the project is from August 2019 to June 2020.

The common objective of the above TA is "to assess the implementation of the National Strategy on Climate Change and propose measures to promote the implementation of the Strategy in the 2021-2030 period" and with 3 specific objectives (i) Assessing the implementation of the National Strategy on Climate Change and Action Plan in recent years in association with the implementation of the Socio-Economic Development Plan; (ii) Providing the experiences of some countries in the world and lessons for Vietnam on coping with climate change in a new development context; and (iii) Proposing solutions to promote the implementation of the Strategy in 2021-2030 period.

In order to assess the implementation situation of the Strategy and Action Plan, 5 key steps were conducted: (i) Building assessment framework and questionnaire with 78 specific targets; (ii) Send the questionnaire to the ministries and localities; (iii) Conducting surveys and consultations in 8 ministries and 20 provinces/cities; (iv) Aggregating information and processing data; (v) Prepare reports and consult with relevant stakeholders.

This report summarizes the project results. The Department of Climate Change, Ministry of Natural Resources and Environment would like to thank the French Development Agency (AfD) for this valuable support. Sincere thanks to the ministries, branches, localities, organizations and individuals for their assistance in the implementation of the project and look forward to continuing to receive comments.

## SECTION I

## SITUATION OF IMPLEMENTATION OF NATIONAL STRATEGY AND ACTION PLAN FOR CLIMATE CHANGE

### 1.1 Implementation situation of the Strategy and Action plan

#### *1.1.1 The strategy's implementation status*

From 2011 to 2019, communication activities and awareness-raising activities have been implemented extensively with various contents; Climate change awareness has been raised. The Conclusions 56-KL/TW of the Politburo emphasizing climate change response, resource management and environmental protection need to be at the centre of development decisions. The system of guidelines, policies and laws continues to be developed and completed with Resolution 24-NQ/TW on proactively coping with climate change, dramatically the management of natural resources and environmental protection. Responding to climate change for the first time has been written in the Law on Environmental Protection 2014; built and revised 10 laws related to climate change; The system of guiding documents is more complete.

Organizational apparatus on climate change response continues to be strengthened. The National Committee on Climate Change was established in 2012; the Department of Climate Change is established at MONRE; Hydrometeorology and climate change department is organized at some Department of Natural Resources and Environment. Investment from the government budget for environmental protection (including coping with climate change) is still guaranteed not less than 1% of the total government budget expenditure and steadily increased over the years. From 2012 to 2018, Vietnam has mobilized 6,915.47 million USD from official development assistance (ODA) to support projects on environmental protection and climate change; SP-RCC alone has raised ~ 1.5 billion USD. Initially, the private sector has been mobilized to participate in forest protection and development activities, especially in wind and solar energy development recently.

Many science and technology programs with a large number of research projects have been implemented; Many research results have been applied in the fields of agriculture, industry, transport, health, construction, livelihood, management of natural resources and environment to cope with climate change.

Vietnam has been actively implementing the obligations of the member country of the UNFCCC, the Kyoto Protocol, the Paris Agreement; play an increasingly active and responsible role in international forums and conferences on climate change. The Government attaches importance to cooperative activities in supervising and sharing information in cross-border issues; actively participating in 13 cooperation programs in the Mekong River Commission; Join the Mekong - Lan Thuong cooperation.

#### *1.1.2 The Action Plan's implementation status*

The national action plan on climate change was approved in the Prime Minister's Decision No. 1474 /QD-TTg of October 5, 2012, nearly 1 year after the Strategy was issued. The plan has identified 65 programs, projects, projects and tasks for the period 2012-2020, including 10 priority programs and projects to be implemented in 2012-2015. The assessment results show that:

- *For 10 priority programs, schemes, projects and tasks in the 2012-2015* period, 6/10 programs, schemes and projects have been approved and implemented independently and 4/10 have been integrated into other programs or projects or through the performance of the state management function of the implementing agency.

- *For 65 programs, schemes, projects and tasks implemented from 2012 to 2020,* the number of approved program, projects, and tasks is 25/65. (accounting for 38%); The number of projects, projects and tasks that have not been approved but has been implemented and integrated into programs, projects and tasks of the host agency is 40/65 (accounting for 62%).

From 2012 through 2020, among 65 programs, schemes and projects that have been implemented, there are 26/65 tasks directly related to climate change adaptation including forecasting, warning of natural disasters and livelihoods. lasting; 16/65 tasks (from No. 26 to 42) related to GHG emission reduction; The remaining 23 tasks are general.

Among the approved and independently implemented programs, there are some programs and schemes that were approved before the time of issuing the Action Plan. As can be seen in the past time, due to the lack of funding, many programs, projects, projects and tasks have not been approved. However, ministries, sectors and localities have actively implemented the integration in other programs, tasks or regular tasks according to management functions.

### 1.2 Results achieved

#### *1.2.1 Regarding climate change adaptation*

Hydrometeorological observation system has been investing and upgrading; Hydrometeorological forecasting technologies gradually approach the level of advanced countries in Southeast Asia, especially in forecasting, warning of storms, heavy rain, severe cold, damaging cold, floods and hot weather. The climate change scenario has been updated twice in 2012, 2016. The disaster prevention and fighting activities continue to be strengthened; damage caused by natural disasters in 2008-2017 decreased compared to the period of 1998-2007, in particular, 38% reduction in the number of deaths and missing people and 29% reduction in material damage.

The area of paddy land and food security is guaranteed. The restructuring of plants and animals, the application of biotechnology to adapt to climate change has initially been implemented. Provinces have converted about 200,000 hectares of inefficient rice cultivation to aquaculture, maize, cash crops and food crops, concentrated in the Mekong Delta and the Red River Delta. Disease control systems have been developed and issued for most crops and livestock suitable for natural conditions and climate. Agricultural insurance policies have been piloted in 20/63 provinces with a total of 304,017 farmer households/production organizations participating.

Basic surveys and database building on water resources continue to be implemented. The task of planning water resources 2021-2030 has been approved. The system of irrigation works has been invested and upgraded; Actual irrigation efficiency compared to the design irrigation capacity has increased from 75% in 2010 to 80% in 2018; built and revised 11 inter-reservoir operating procedures in 11 river basins. The policy and

system of standards and technical regulations on economical and efficient use of water resources have been issued and gradually improved.

The implementation of the planning of residential areas to cope with rising sea levels has achieved many results; have implemented programs and projects to combat flooding and saline intrusion in Ho Chi Minh City and the Mekong Delta. Resolution 120/NQ-CP on sustainable development of the Mekong Delta adapt to climate change was issued.

Forest protection and development continued to achieve positive results; forest area and coverage increased, reaching the targets set by the National Assembly; REDD + program has been implemented to increase the ability to absorb GHG and create livelihoods for the community; policies to socialize forestry activities have been strengthened; law violations, the number of cases and burnt forest area decreased compared to the previous period. Biodiversity conservation continues to be concerned; The number of nature reserves continues to increase; conservation programs have been implemented.

### *1.2.2 Regarding the greenhouse gas emissions mitigation*

Renewable energy development and hydropower development meet the set targets; Renewable energy development mechanisms have been issued, promoting strong development of solar and wind power; energy security is guaranteed; The Politburo issued Resolution 55-NQ/TW on energy development orientation to 2030.

The system of policies and laws on economical and efficient use of energy continues to be perfected; have researched and developed many energy-efficient technologies and equipment; energy pricing system is set in the direction of encouraging economical and efficient use; energy labelling is promoted; the national target program on economical use and energy efficiency in the period of 2011-2015 has saved 5.65%, meeting the set target. In industrial production and construction, the Cleaner Production Strategy is implemented; Many constructions have been certified green buildings. The public transportation system was built in Hanoi and Ho Chi Minh City; biofuel applied; issued preferential policies to encourage the use of environmentally friendly transport. The agriculture and rural development sector have been implementing a lot of farming methods, using fertilizers, animal feeds and treating livestock wastes appropriately to reduce GHG emissions.

The role of the community in coping with climate change has been heightened; Many livelihood models to adapt to climate change and low carbon have been developed and piloted in many localities; Indigenous knowledge in response to climate change is preserved. Community health care system effectively coping with climate change continues to be developed; basically, ensure 100% of the population has access to basic health services.

In general, by 2020, Vietnam will ensure food security and energy security. Hunger eradication, poverty reduction, gender equality, social security continue to be guaranteed; Community health is concerned, people's lives have been gradually improved. Awareness on climate change has been higher than before; The environment is considered a fundamental element for sustainable economic and social development; Climate change response, resource management and environmental protection should be at the center of development decisions. Vietnam is a responsible member, endeavor

to participate and cooperate, and has been actively contributing to the international community in responding to climate change; has committed to reducing 8% of GHG emissions by 2030 compared to the normal development scenario.

### 1.3 Limitations, weaknesses and causes

#### *1.3.1 Limitations, weaknesses*

*Regarding climate change adaptation,* the system of monitoring stations has not met the requirements of modernizing natural disaster forecasting and warning. The forecast and warning system has not yet met the requirements for several natural harmful such as flash floods, tube floods, landslides, thunderstorms, tornadoes, hail and fog on the sea. The investment, construction and upgrading of key projects to cope with natural upgraded, including river dykes, sea dykes, reservoirs, ships' shelters and landslide sites, have not yet met requirements. The survey and establishment of zoning map of landslide risk at commune level have not been widely implemented to written. Damage from natural forth to the economy is still large, estimated at 1.5-2% of GDP per year. Some provinces are frequently damaged by natural, such as Thanh Hoa, Quang Binh, Quang Tri, Phu Yen,...

Conversion of agricultural land to non-agricultural use continues in many expertise; advocating land accumulation and building large fields are still facing increasing. The conversion of major plants and animals is still spontaneous, not under planning; the number of new plant varieties and animal breeds, able to cope with climate change, is still small. Control and prevention systems for crops and livestock have been established but not yet fully built for cases of disease caused by climate change. Agricultural insurance has only been piloted.

Database of water resources has not been completed; 70% of the country still has no mapping of underground water resources at a scale of 1: 100,000. Cooperation with neighboring countries on water resources is not effective. Until now, no river basin committees have been set up; policies, laws on economical, efficient and multiuse of water resources are not comprehensive and comprehensive. The construction and upgrading of irrigation, hydroelectric works, river and sea dyke systems have not yet met the requirements. The situation of saltwater intrusion in the Mekong Delta, water shortage due to drought in the coastal provinces of South Central and Central Highlands continues to be increasingly severe. Disputes over water resources still occur in some provinces.

Implementation of activities to protect and develop island areas to cope with climate change, especially sea-level rise has not been implemented fully. Programs and projects against flooding in urban areas and large cities are still slow, inundation still occurs frequently in Ho Chi Minh City, Can Tho and Hanoi.

Coverage has increased, but forest quality continues to reverse; Deforestation still happens in many often in the Central Highlands and South Central. Coastal mangrove afforestation had to reduce its objectives compared to the original project because of insufficient funding. Biodiversity continues to tend to decrease. The involvement of forestry enterprises in forest protection and development to cope with climate change does not match its potential; Land use in agricultural and forestry farms is ineffective and inadequate.

*Regarding the greenhouse gas emissions mitigation,* renewable energy planning is still inadequate; no foresight, many projects have to be added, especially wind and solar

energy. In the coming time, the national electricity source will still depend on coal thermal power, in which raw materials are imported coal sources, posing risks of environmental pollution and energy security.

There is still great potential for economical and efficient use of energy in untapped sectors. The intensity of energy use per unit of GDP of Vietnam is more than 2 times higher than that of the world. The research, development and application of technologies, equipment and consumer products using energy efficiently, using non-fossil energy, low emissions have not had many strong changes.

The construction of green buildings, in general, has not developed strongly, not commensurate with the potential of the market. The system of public transportation in urban areas is still weak; The rate of public passenger transport by bus in Hanoi in 2018 was only 13.7%, in Ho Chi Minh City reached 9.38%. Private vehicles still account for a large proportion and continue to increase rapidly. The rate of buses using low-fuel fuels such as CNG, LPG is very limited, only about 4%.

The change of appropriate agricultural practices, water use, fertilizers, and animal feeds has just stopped at models, not taking place on a large scale. Organic agriculture is underdeveloped; Agricultural production still relies heavily on chemical fertilizers and pesticides, pollution, environmental degradation and GHG emissions. Waste management is still inadequate; advanced solid waste treatment technologies have not yet been commonly applied, more than 70% of urban domestic solid waste is still unsanitary landfills.

*Regarding building a community to effectively respond to climate change,* the development and diversification of livelihoods to adapt to climate change still face many diverse. Many localities have difficulty accessing and transferring technical advances. Community with low-carbon livelihoods models have only been piloted but have not been replicated on a large scale. Medical infrastructure has not yet met the requirements of medical examination and treatment for people in the context of complicated disease outbreaks. Infrastructure system for community health care in the context of climate change for vulnerable social groups such as ethnic minorities, the poor in rural areas, remote areas, mountainous areas, islands ... have not been developed like other regions.

*In general,* by 2020*,* Vietnam will still face many challenges of water security, especially in the coastal areas of South Central Coast, Mekong Delta and Central Highlands. Low carbon economy, green growth have not become the leading trend in sustainable development; GHG emission reduction and increase of GHG uptake capacity have not become mandatory targets in socio-economic development (but it will be mandatory from 2021).

### *1.3.2 The cause of the limitations and weaknesses*

*Objectively*, climate change continues to be complicated and faster than forecast, causing much negative consent; increased exploitation of water resources in the upper Mekong and Red River of neighboring countries; economic growth model is not sustainable.

*Subjectively*, this is because: (i) The sense of responsibility for proactive response to climate change and disaster prevention has not met the requirements; (ii) The legal policy system on climate change response is still inadequate; There are still many mechanisms and policies lacking; (iii) Organizational structure and human resources

are still inadequate; the law enforcement organization is weak; The effectiveness and efficiency of the law are not high; (iv) Financial resources for responding to climate change are insufficient compared to requirements; mobilization of resources from private enterprises is weak; (v) The application of science and technology in response to climate change is generally slow; (vi) The National Strategy on Climate Change has some shortcomings; The urging and reporting on the implementation situation have not been given adequate attention; Many tasks and projects in the Plan were not approved.

## SECTION II

## INTERNATIONAL EXPERIENCE AND LESSONS FOR VIETNAM IN RESPONDING TO CLIMATE CHANGE

The project studied and reviews experiences in responding to climate of island states (Fiji, Nauru, Papua New Guinea and Vanuatu), European Unions and four Asian countries (Japan, South Korea, Thailand and Bangladesh).

### 2.1 Experience and lessons on resources mobilization and participation in climate change response

*(1) Increase access and mobilize resources from the multilateral environment and climate funds, and international development partners.*

The countries of Nauru, Papua New Guinea, Bangladesh, Thailand, etc. have all been implementing supporting projects from multilateral climate and climate funds such as Green Climate Fund (GCF), Global Environment Facility (GEF), LDCF, Adaptation Fund (AF), WB, ADB. Other development partners also play a very important role such as GIZ, USAID, AusAID,... supporting areas are forestry, natural disaster prevention, infrastructure development for climate change adaptation, renewable energy, capacity building,... In the coming time, Vietnam needs to continue promoting and expanding international cooperation, especially access to GCF, GEF and development partners in the context of Vietnam becoming a middle-income country to mobilizing financial and technical resources to contribute to the implementation of the tasks set out by the NSCC

*(2) Establish and operate national funds to respond to climate change*

Bangladesh has established climate change response funds such as the Revenue Fund, the Climate Change Trust Fund and the Bangladesh Climate Change Resilience Fund, which mobilizes resources from the government's financial and development partners. Thailand has also established a revolving fund to assist businesses in investing in energy-saving projects. Vietnam does not have a separate fund for climate change actions but has just established an Innovation Center to respond to climate change supported by the World Bank. Vietnam Environment Protection Fund was established in 2003 but mainly supports projects on environmental protection.

*(3) Establish and apply carbon tax and emissions trading market (ETS), promote participation in JCM mechanism to mobilize the support of Japan and the participation of domestic enterprises.*

Experience from countries such as Japan, South Korea and Thailand shows that Vietnam needs to develop and apply several mechanisms and policies on (i) Taxing the use of raw materials, fuels producing GHG and creating incentives and support in investing in renewable clean energy sources (carbon tax); (ii) Develop and develop an emissions trading system (ETS), focusing primarily on some key sectors, with large emissions (such as thermal power, steel and cement), then raising the target and opening wide. At the same time, as a developing country with a low technological level, Vietnam needs to step up its participation in the Joint Credit Mechanism (JCM) to mobilize investment from other countries and the involvement of enterprises.

*(4) Promote private sector participation in climate change response*

From the experience of Japan and Korea in mobilizing resources from the private sector is very important, especially in the field of GHG emission reduction. The issuance of

green bonds is focused, mobilizing the participation of investors. Japan and South Korea also attach great importance to investment in research and development (R&D), promoting innovation, creation and commercialization of research results. Thereby, developing a strong market of climate-resilient technology and increasing investment participation. The construction and implementation of public-private projects (PPPs) are also important. Projects to cope with climate change often take a long time and bring low profits, therefore, the Government needs to commit to mechanisms and policies to ensure benefits and limit risks for investors.

*(5) Promote the active participation of the community; enhance close cooperation of stakeholders to improve the convergence and efficiency of climate change response resources.*

Experience from SIDS islets, developing and developing countries such as Japan and South Korea show that awareness and understanding must be improved, thereby promoting community participation in responding to. Climate change. Although Vietnam already has many community-based adaptation models implemented by non-governmental organizations, the scale is still small, not yet systematized by region and vulnerability level. Accordingly, it is necessary to promote the implementation of community-based adaptation projects and models, promoting traditional indigenous knowledge to adapt to climate change.

## 2.2 Experiences and lessons learned on identifying priority areas in responding to climate change

### *2.2.1 For climate change adaptation*

*(1) Prioritize adaptation areas related to food security, water resources security and livelihoods of people, especially vulnerable areas.*

Food security is one of the areas to be considered in the context of increasing climate change, especially for developing countries that rely on agriculture. This is one of the priority policies, strategies and plans to adapt to climate change of SIDS as well as in Bangladesh and Thailand. Water resources in developing countries are a condition for ensuring food security due to their close relationship with drought, flood and food production. Therefore, impact assessments and the development and development of sustainable livelihoods, resilience to climate change, such as sustainable fishing, ecotourism,... Vietnam, therefore, needs to prioritize actions to cope with climate change-related to food security and water security in the coming time based on the results of vulnerability assessment and sustainable livelihood options coping with increasing climate change impacts.

*(2) Focus on adapting to sea-level rise, with priority given to nature-based solutions (NbS), ecosystem-based adaptation (EbA); strengthen forest protection and development.*

Experience of the small island countries shows that the problem of sea-level rise is related to livelihoods, technical infrastructure, social and environmental resources in coastal areas. Adaptation to sea-level rise is normally associated with diversification of livelihoods and prevention of disaster risks. Experience of Papua New Guinea, Vanuatu shows that ecosystem-based adaptation (EbA), natural-based solutions (NbS) are priority solutions, particularly development and protection of coastal mangroves, protection and restoration of marine ecosystems,… These solutions are also associated

with ensuring sustainable livelihoods based on marine resources for communities, improving resilience to the impacts of climate change. The development of harmony with nature, following the laws of nature, is very important. Although Vietnam has piloted EbA and NbS measures in several places, the focus is on coping with sea-level rise, with the priority of applying NbS, EbA and strengthening forest protection and development is necessary.

*(3) Encourage the application of risk insurance due to climate change and assessment of climate risks and disaster risks in the implementation of development plans and investment projects.*

Experience from European countries shows that the implementation of climate risk insurance will share the losses and damages caused by climate change. It will also promote risk assessment by agencies, organizations and individuals providing insurance services. The results of disaster risk assessment and climate change will make planning and planning more informative. Vietnam has only piloted agricultural insurance but it does not have a disaster and climate change insurance program yet. Besides, it is important to assess the natural disaster and climate risks in development planning and investment projects, especially in coastal areas. The results of the risk assessment can help to adjust development plans, especially in coastal areas, so that disaster risk can be reduced.

*(4) Enhance the role of local governments, strengthen regional and local links in climate change adaptation*

The European Union has encouraged all member states to adopt a comprehensive adaptation strategy. Accordingly, guidelines have been provided to develop adaptation strategies and plans. In Vietnam, it is necessary to continue to enhance the role of local authorities at the same time and create mechanisms to promote links and cooperation between localities and regions to adapt to climate change. In which, it is necessary to set up a mechanism for reporting, exchanging and sharing information on the impacts of climate change as well as the results of implementing adaptation measures in localities to promote the strength of linkages among localities in climate change adaptation.

*(5) Prioritize the field of adaptation related to human health, focusing on measures to cope with the impacts of climate change and increase disease.*

European Union and Japan have much experience with health issues in the context of climate change, especially for elderly. In which, the impact of climate change on human health needs to be assessed and statistics to be integrated into public health plans and programs, ensuring a good response to the effects of changes in temperature and new infectious diseases,.... Climate change is forecast to be increasing day by day, specific measures are needed to ensure the public health and public health, such as coping with the heatwave, infectious diseases and malaria,.... In the next 10 years, the number of elderly people in Vietnam will also increase, ensuring the health of the entire population, especially vulnerable subjects in the context of climate change is an urgent requirement. Vietnam needs to take precedence over adaptive actions related to human health, in which the measures to cope with the impacts of climate change and increase epidemics are key.

### *2.2.2 For GHG emission reduction*

*(1) Energy is a high priority area while agriculture and LULUCF are also areas of focus in developing countries.*

Experiences from many countries show that, the key strategy for mitigation in energy sector is focusing on (i) economical and efficient use of energy in industries and fields; (ii) developing renewable energy. This is a focus area in developed countries such as the EU, Japan and South Korea. From 2021, Vietnam is required to implement measures to reduce GHG emissions, including emission reductions in energy section (mentioned in the Nationally Determined Commitment - NDC) and role. The role of the agriculture sector, LULUCF in reducing GHG emissions, should be promoted and implemented with priority actions.

*(2) Accelerating the transformation of development models, implementing green growth to economic development while reducing greenhouse gas emissions.*

South Korea is a leading country in green growth, promoting low-carbon society, saving energy and renewable energy, green lifestyles, green rural areas, green transportation and green industry. Japan and the EU have taken similar measures to address low carbon emissions. Developing countries, such as Thailand as well as some SIDS, have linked the implementation of climate action with the national sustainable development strategy, linking emission reduction activities with solving environmental problems such as solid waste treatment, wastewater or restricting deforestation, forest degradation, etc. Vietnam is implementing the National Strategy on Green Growth, Sustainable Development Strategy, etc., so the issue of transforming the development model and promotion of low-carbon society should be prioritized in coming years.

*(3) Strengthen the system of standards, technical regulations, voluntary targets to promote GHG emissions reduction in the energy sector.*

Japan has prioritized the development of vehicles with low fuel consumption and carbon emissions. Japanese industry groups also prioritize the establishment of voluntary action plans (VAPs) and set voluntary emission limits and mitigation targets. The "top-runner" standard set by the government promotes industries to achieve their voluntary goals. South Korea has also issued a renewable investment standard (RPS) that sets strict rules for national electricity producers to meet the targets for the share of electricity from renewable energy sources. Vietnam, therefore, needs to strengthen and improve the system of standards and technical regulations on GHG emissions to encourage businesses to apply mitigation measures.

*(4) Establish an emissions trading system (ETS), implement a common credit mechanism (JCM) and institutionalize mitigation activities.*

Experience from the EU, Korea and Japan shows that ETS will promote GHG emission reduction, mobilize resources from the private sector as well as encourage technological innovation, economical and efficient use of energy. Vietnam needs to research and establish a carbon market soon. At the same time, as a developing country with low technology level, Vietnam needs to step up its participation in the Joint Credit Mechanism (JCM) to implement mitigation projects. On other hand, the experience of Japan and South Korea shows that the enactment of the Law to promote measures to cope with global warming, the Law on Green Growth is important, clearly defining the role and responsibility of relevant stakeholders in GHG emission reduction.

### 2.3 Experiences and lessons on setting up an information platform and sharing mechanism

*(1) Establish a climate change information platform linking the central to local levels and across sectors.*

One of the adaptation information platforms built on specific goals that Vietnam can consider applying is Climate-ADAPT, established by the European Commission and the European Environment Agency. Climate-ADAPT is Europe's general information platform to support governments, organizations and individuals in developing and implementing climate change adaptation strategies and actions. This platform aims to build databases, technical documents to put into the process of developing policies to adapt to climate change. Currently, Vietnam is developing a National Adaptation Plan, updating the NDC and the Paris Agreement Implementation Plan for the period 2021-2030, so there should be a comprehensive platform of common adaptation for the whole country, regions and provinces and cities, providing information to policymakers at all levels, businesses, investors and citizens.

*(2) Develop and operate mechanisms for updating and sharing information on climate change online*

Climate-ADAPT also shares information related to climate change adaptation across Europe. Climate-ADAPT is an open mechanism to receive information across Europe and what content is of appropriate value will be used to share across the platform, as well as convert existing users/platform visitors. become the information provider. This is considered a good example for Vietnam to learn in the process of selecting, collecting and sharing information on the country's adaptive platform in the future. Web-links need to be diverse to meet the needs of different users in climate change adaptation.

### 2.4 Experiences and lessons learned on developing a monitoring mechanism for implementing climate change policies

*(1) Develop a reporting mechanism on the implementation of climate change objectives*

Experience from the EU shows that Vietnam needs to develop a reporting mechanism and list several reports that must be updated annually based on the obligation to implement the United Nations Framework Convention on Climate Change (UNFCCC) and Paris Agreement. At the moment, Vietnam only prepare reports submitted to UNFCCC but has not produce national climate action reports updating annually for state management and other purposes domestically.

*(2) Develop a monitoring and evaluation mechanism for response to climate change*

From the experience of the EU, Vietnam needs to set up a mechanism to monitor and evaluate targets and actions on climate change response, especially actions to reduce GHG emissions. Currently, even the National Climate Change Strategy has no monitoring and evaluation framework. Besides, the experience of Japan and Thailand shows that to develop and implement national plans and strategies, participation in monitoring people and the whole society is very important. In the 2021-2030 period, the implementation of a monitoring and evaluation mechanism for climate change adaptation in Vietnam is necessary, on the one hand, as required by the Paris Agreement.

## SECTION III

## MEASURES TO PROMOTE IMPLEMENTATION OF NATIONAL STRATEGY ON CLIMATE CHANGE IN THE 2021-2030 PERIOD

### 3.1. Contexts, opportunities and challenges on CC responses in Vietnam

#### *3.1.1. International context*

In the world, peace, cooperation and development are still the main trends in the coming time. Globalization, extensive international integration, Industry 4.0, scientific and technological development, knowledge economy continue to be promoted. However, competition in the country is more intense and more comprehensive, nationalism and the trend of trade protectionism are emerging. Ethnic and religious conflicts, resource and territorial disputes, especially disputes over sovereignty over seas and islands in the region and the South China Sea, continue to be complicated. The global outbreak of pneumonia caused by Covid-19 has greatly affected the movement and circulation of goods, which will have a great negative impact on the world's economy as well as resources for coping with climate change.

Since 2015, the United Nations has adopted the Agenda for Sustainable Development to 2030 with 17 goals (SDGs). Sustainable development has become an overarching trend, greatly influencing economic, trade and investment cooperation around the world, which is the focus of many countries' development policies for the next 10 years (2021-2030). The digital economy, the circular economy, and the development of green economy continue to be concerned by countries through the development of clean energy, low carbon and inclusive development. Implementing the Paris Agreement on climate change, except for the United States that has announced its withdrawal from the Agreement, countries (including Vietnam) are responsible for taking actions and achieving GHG emission reduction targets. committed in the NDC.

#### *3.1.2. National context*

In Vietnam, after nearly 35 years of renovation, the country has gained many important achievements in the industrialization and modernization process. Economic growth has been maintained, people's lives have been constantly improved, the country has moved out of the group of poor countries and joined the group of middle-income countries. The political situation is maintained stably; Poverty reduction continues to achieve many results. However, the model of economic growth is not sustainable, the quality of growth, labour productivity are still low, and the risk of "middle-income trap" still exists. Natural disasters, epidemics, climate change - especially drought, saltwater intrusion in the Mekong Delta region or prolonged drought in the Central Coast region such as Binh Thuan, Ninh Thuan are getting worse, environmental pollution is exhausted. resource exhaustion and biodiversity decline,... continue to be challenges for sustainable development.

Climate change trends and rising sea levels in Vietnam are increasingly clear and affect all sectors, fields and localities. Extreme climate events are also on the rise. The number of storms and tropical depressions tends to be less variable but has a more concentrated distribution at the end of the storm season, this is also the period when the storm operates mainly in the South. Strong to very strong storms are on the rise. Drought can become more severe in some areas due to rising temperatures and the

ability to reduce rainfall during the dry season. In recent years, the drought situation is happening frequently and is getting more serious in many regions across the country, especially in the Mekong Delta and Central Coast regions.

The policy orientation of the Party and the Government in the coming time is to continue developing rapidly and sustainably, renovating the growth model and restructuring the economy; promote industrialization and modernization associated with the development of the knowledge economy, and become an industrial country by 2030. There is a need to continue to improve socialist-oriented market economy institutions; strongly develop the private economy, reform government enterprises; streamlining the government management apparatus and renovating the operation of public non-business units.

### *3.1.3. Opportunity and challenge*

*a) Opportunity*

The international community is more aware of the impacts of global climate change and is committed to making efforts to fight climate change. The Paris Agreement on Climate Change in 2015 has been committed to nearly 200 countries, of which the updated NDC for the next 5-year period (2021-2025) is being urgently implemented by countries. Agenda for Sustainable Development to 2030 has been adopted by countries. The model of the recirculating economy, low carbon economy and low emission economy is being promoted by many countries.

The orientation on coping with climate change has been formulated and thoroughly understood by the Party and Government of Vietnam to all levels and sectors. Resolution 24/NQ/TW on a proactive response to climate change, strengthening natural resource management and environmental protection has set a long-term orientation on climate change response; Resolution 120 / NQ-CP on Sustainable Development of the Mekong Delta to adapt to climate change has also proposed a favorable development perspective, based on ecosystems.

*b) Challenge*

Climate change happens quickly, causing negative impacts on the socio-economic development, environmental resources and human health of Vietnam. Saline intrusion and drought have been increasing, especially in the coastal provinces of South Central, Central Highlands and Mekong Delta. Storms, floods, flash floods, landslides occur in coastal areas in the Central and Northern Uplands more frequently ...

Since 2021, Vietnam has to officially implement international commitments on reducing GHG emissions under the NDC, but the awareness of all strata in society, especially businesses, has not changed much. The demand for investment in responding to climate change is huge while resources are limited, mobilization and resources face many difficulties.

## 3.2. Propose measures to promote the implementation of the National Strategy on Climate Change in the 2021-2030 period

To promote the implementation of the National Strategy on Climate Change in the 2021-2030 period, the following 10 groups of solutions are proposed, including:

***(1) Overcoming the limitations and inadequacies, continuing to implement the tasks of the Strategy; attaching importance to some priority sectors and domains with high co-benefits; focus on coping with climate change in some key areas and areas***

From 2021 to 2030, Vietnam needs to take measures to overcome the limitations and weaknesses in the implementation of the task groups identified above. Adaptation is the task of strengthening the capacity to respond to natural disasters, ensuring food security and water resources, and actively responding to rising sea levels. In terms of mitigation, tasks of forest protection, sustainable development, renewable energy development, economical and efficient use of energy, low carbon agriculture and quality management need to be implemented. waste.

In particular, it is necessary to identify and clarify the co-benefits between adaptation and mitigation, between the activities of sectors and fields, to identify priorities and to create linkages and increase the convergence of activities and effectiveness of programs and projects of sectors and fields in response to climate change, specifically as follows:

*- Regarding priority sectors and fields:*

+ *Increasing investment in disaster prevention and fighting infrastructure:* Priority in investment in renovation, restoration and upgrading of the river and sea dykes, reservoir projects, hydroelectric dams, shelters storms for boats to improve disaster prevention capacity. Actively implement adaptive solutions based on ecosystems (such as planting and protecting mangrove forests ...) to simultaneously ensure livelihoods for people.
+ *Strengthen the management of water resources in the context of climate change:* Conducting surveys, assessments, forecasting developments, managing water resources according to river basins in the context of climate change. Invest in building reservoirs and dams, improving irrigation systems to ensure irrigation for daily life, agricultural production, and livelihoods for the community. Develop and implement policies on economical and efficient use of water resources.
+ *Continue to prioritize and invest in forest protection and development:* Promote the protection of special-use forests, protection forests and development of production forests; investing in afforestation and preserving coastal mangroves to increase resilience to the impacts of climate change. Strictly implement policies on closing natural forests; strengthening forest protection, inspection and protection in the Central Highlands and the Northern Uplands. Promote the allocation of land and forests to communities and households to forest areas from forestry companies, agroforestry farms.
+ *Promote the strong development of renewable energy to ensure the harmonization of interests of the Government, people and businesses:* Formulating and implementing the National Electricity Development Plan up to 2030 with a vision, goals and tasks and solutions to develop electricity from wind and solar energy; gradually reduce the proportion of coal thermal power. Institutionalize and successfully implement the guidelines and policies of the Politburo's Resolution 55-NQ / TW on the orientation of Vietnam energy development to 2030.

+ *Update and successfully implement Vietnam's NDC:* Review and update commitments on GHG emission reduction and climate change adaptation actions in the NDC in 2020 and 2025. Invest resources in ensuring the implementation of the GHG emission reduction goal by 2030 committed to the international community.

*- Regarding promoting climate change adaptation in some key areas:*

+ *Mekong Delta region:* Promote solutions to adapt to drought, saltwater intrusion, erosion of river banks and coastlines in the Mekong Delta. Effectively and successfully implement the contents, tasks and solutions of Resolution 120 / NQ-CP on sustainable development of the Mekong Delta to adapt to climate change. Develop planning for the Mekong Delta 2021-2030 in the direction of sustainable development. Restructuring agriculture, developing infrastructure, developing sustainable livelihood models, coping with climate change and declining water resources.

+ *Central coastal region:* Implementing structural and non-structural solutions to adapt to impacts of storms, floods, saltwater intrusion and coastal erosion. Develop and deploy models of housing resistant to natural disasters and livelihood models adaptable to climate change. Implementing the solutions of Resolution 26 / NQ-CP promulgating the Government's master plan and 5-year plan for implementation of Resolution No. 36-NQ / TW of October 22, 2018, on development strategy Sustainable marine economy of Vietnam to 2030, vision to 2045.

+ *Northern mountainous region:* It is necessary to complete solutions of overall investigation and assessment, mapping flash floods, pipe floods, landslides ... for high-risk provinces. Formulating and implementing regional and provincial planning, focusing on relocating people from areas at risk, arranging and arranging livelihood development for people. Implement measures to strengthen capacity to cope with climate change, create sustainable livelihoods for ethnic minorities.

+ *Urban area:* Develop and implement planning to develop cities resisting climate change. Focusing on resolving urban flooding issues in Hanoi, Ho Chi Minh City, Can Tho ... Developing green cities and smart cities; improve and improve the quality of the living environment of people in big cities. Review and evaluate the results of the implementation of the Project "Developing Vietnamese cities to cope with climate change in the period of 2013-2020" issued under Decision No. 2623 / QD-TTg dated December 31 / 2013 and propose the implementation of the Project for the period of 2021-2030.

+ *Islands and archipelagos:* Carry out projects to assess the impact of climate change, propose and implement coping solutions, especially for sea-level rise to important strategic islands and archipelagoes (the Truong Sa Islands, Bach Long Vi island, Cu Lao Cham, Con Dao, Phu Quoc Island ...).

***(2) Continue to raise awareness and sense of responsibility of all levels and sectors in responding to climate change; turning the awareness of businesses and communities into specific actions in responding to climate change; ensure gender equity and socially disadvantaged groups in response to climate change***

- Disseminate and raise awareness of all levels and sectors about the viewpoint *"It is*

*necessary to place requirements on natural disaster prevention, response to climate change, natural resource management and environmental protection at the centre. of development decisions; ensure the harmony of interests, create incentives to encourage stakeholders to actively participate in the work of coping with climate change, managing, exploiting and using resources effectively and protecting the environment "*at Conclusion 56-KL/TW of August 23, 2019, of the Politburo; gradually change perceptions and mindsets in development policy planning.

- Disseminate knowledge, change perceptions and mindsets of leaders, businesses and communities on issues on developments, impacts, challenges and opportunities that climate change response brings to change. Development model towards more sustainable. For example, considering saline water, brackish water as a resource, applying ecological-based adaptation (EbA), ... to develop in harmony with nature; converting production technologies to reduce GHG emissions while improving the efficiency of resource use, energy, environmental protection and labour productivity improvement ...
- Change the mindset about responsibility to reduce GHG emissions. From 2021, reducing GHG emissions has become a mandatory obligation for all levels, sectors and businesses to realize the goals of the NDC. Concentrate and clarify responsibilities of sectors, localities and businesses in reducing GHG emissions and implementing the National Strategy on Climate Change, especially for heads of agencies and units.
- Promote the sense of responsibility, turn it into specific actions of businesses in response to climate change. Raising awareness and understanding of businesses on ecosystem-based adaptation, natural-based solutions, green economy, recirculation economy, low-carbon development.
- Strengthening education and training; development of climate change training programs at universities and research institutes; Integrating the contents of climate change response, economical, efficient and sustainable use of resources in the educational programs of vocational training schools and general education levels.
- Continue to diversify communication activities on climate change response. Raising awareness, turning responsibility sense into action, building green lifestyles, sustainable consumption of the community. Promote environmental ethics, arouse the sense of living in harmony with nature, love nature of Vietnamese people.
- Raising awareness of gender equality and paying attention to disadvantaged groups in society (the elderly, children, disabled people, ethnic minority gossip ...), especially in vulnerable areas. trade is high, ensuring no one is left behind in responding to climate change.

***(3) Complete the system of policies and laws on climate change response based on the revision and formulation of policies and mechanisms; integrating climate change into development strategies and planning; unify plans to cope with climate change***

- Research and amend the Law on Environmental Protection 2014, Law on Audit 2015, Law on Biodiversity 2008, Law on Environmental Tax 2010, Land Law 2013, Mineral Law 2010, Law on Natural Disaster Prevention and Control 2013, Dike Law Article 2006, Law on Water Resources 2012, Law on Natural Resources and Environment of Sea and Islands 2015, Law on Economical and Efficient Use of

Energy in 2010 ... in the direction of overcoming overlaps, conflicts, ensuring the unify and synchronize the law on coping with climate change with specialized laws.

- Research and develop the Law on Climate Change, towards a comprehensive and comprehensive legal system for coping with climate change. Learn from Japan and South Korea experiences on the Law of Responding to Global Warming and Law on Green Growth and other countries' Climate Change Law
- Continue to research, develop and perfect mechanisms and policies to institutionalize guidelines and policies of the Party on climate change response, specifically:
    + *Regarding climate change adaptation,* complete the guidance system to integrate climate change into development strategies, planning and plans; incentive mechanism for land accumulation, development of large fields; priority policy, support farmers in rice production areas commodity production peace of mind, not leaving fields; establishing a food security monitoring system (including national nutritional security); guide the implementation of risk insurance in agriculture; priority policy for vulnerable people, production restoration and environment after natural disasters; mandatory policies of financial contribution and responsibility for protection and restoration of activities that increase natural disaster risks and reduce the capacity to adapt to climate change of natural systems and technical infrastructure; mechanisms and policies for wounded and sacrificed officials and soldiers who participate in and serve disaster prevention and search and rescue work; mechanisms and policies to encourage participation of businesses and communities in adaptation activities; documents guiding the implementation of the Forestry Law, the Fisheries Law,...
    + *Regarding GHG emission mitigation,* complete NDC update in 2020 and 2025; developing and issuing decrees on the roadmap and methods of GHG emission reduction and guiding circulars; build and develop carbon market; development and application of carbon allocation quotas; supplement carbon sequestration services in payment of forest environmental services; pilot and apply carbon labelling to some types of products; implementing policies to control emissions for motorcycles and mopeds; raising the level of emission standards for vehicles; building a roadmap to eliminate subsidies for fossil fuels; step by step implementing the electricity trading market; carbon storage policy in mined mines (CCS); green building development support mechanism; institutionalize the guidelines of the Politburo's Resolution 55-NQ / TW on energy; policies to widely apply methods of low-carbon agricultural cultivation, especially in rice cultivation, etc.
- Review, assess and integrate the content of the response to climate change, ensuring the uniformity, consistency and coherence between the National Strategy on coping with climate change and the sectoral strategies in the period of 2021-2030, such as environmental protection strategy, the national strategy of green growth, the strategy of natural disaster prevention, the strategy of water resources, the strategy of minerals, forestry, land management, etc.
- Continue to review and improve the system of standards and technical regulations on coping with climate change. Regarding the adaptation and improvement of QCVN in the fields of irrigation, water resources (for example, products, equipment, technologies that use water efficiently and efficiently), construction, transport ... to

adapt to climate change and sea-level rise. On mitigation, perfecting the system of standards and technical regulations in the fields of environment, energy, agricultura,.... towards controlling and preventing outdated and outdated technologies, encouraging the promotion of low-carbon technologies.

- Integrating the contents of climate change response into national master planning, national land-use planning, national sea space planning, branch planning, regional planning and provincial planning according to the Law 2017 Planning and Law on Environmental Protection 2014; minimizing production and business sectors and projects, inefficient development of natural resources, causing environmental pollution, and emitting large amounts of greenhouse gases.
- Study and review national plans for coping with climate change and related plans (National action plan on coping with climate change, the Implementation plan of Paris Agreement, National adaptation plan, Plan National action plan on green growth, National action plan on environmental protection ...), Ministries' and sectoral plans to cope with climate change (Ministry of Agriculture and Rural Development, Industry and Trade, Construction ...) and consolidated into a Program overall coping with climate change in the period of 2021-2030 to avoid overlapping, duplication, spreading and ineffective resources. The program will allocate detailed projects and tasks to ministries, sectors and localities with specific funding sources, ensuring the successful implementation of the Strategy for the 2021-2030 period.

***(4) Continue to strengthen the organizational structure, enhance the role and responsibilities of local governments; improve the effectiveness and efficiency of government management in the field of the response to climate change***

- Continue to strengthen the organization of the system to respond to climate change at both central and local levels. To research the consolidation of *the Office of the National Committee on Climate Change, the Standing Office of the Steering Committee for the implementation of the UNFCCC and the Kyoto Protocol, the Office of Ozone; and the Coordination Committee of the Climate Change Support Program* into the Office of National Committee on Climate Change under the Department of Climate Change. Establishing sections and groups of officials specialized in responding to climate change in ministries and sectors.
- Improve the role of local governments in proactively responding to climate change. Establishment of Meteorology, Hydrology & Climate change offices at DONREs in localities. Complete and improve the operational efficiency of the provincial Steering Committee and Office to Respond to Climate Change, which specifies the responsibilities for implementing and monitoring tasks in the National Strategy on Climate Change.
- Implement training, retraining and improving knowledge and knowledge on climate change response for climate change management officials in ministries, sectors and localities, from commune upwards, enterprises and mass organizations.
- Improve the position and role of the Ministry of Natural Resources and Environment (MONRE) as an agency to coordinate climate change response activities across the country. Strengthen coordination among ministries, central agencies in responding to climate change, specifically in forecasting, warning and preventing natural disasters, managing water resources and inventorying and implementing mitigation activities. GHG emissions. Strengthening industry linkages in responding to climate change, ensuring the harmony of interests of stakeholders and the effectiveness of

coping activities.

- Strengthening the links between regions and localities in climate change adaptation. Review and set up river basin committees and management regulations. There is a need to learn from the EU's experience in promoting linkages and cooperation among members of the bloc through the inclusion of climate change adaptation in the Mayor Agreement. It is necessary to enhance the roles and responsibilities of local governments at the same time and create mechanisms to promote links and cooperation between localities and regions to adapt to climate change.
- Stepping up inspection, examination and handling of administrative and criminal violations of the law in the field of land management (control of rice land conversion); forest protection and development (illegal deforestation, especially in the Central Highlands and northern mountainous areas), dyke management, natural disaster prevention, water resource management, environmental protection. • Develop and implement a mechanism to resolve complaints and disputes in the fields of forest protection, water resources, environmental protection,...
- Accelerating reform, cutting administrative procedures, cutting compliance costs for businesses in the field of climate change response such as energy, industry, agriculture,...
- Improve accountability and transparency in responding to climate change; enhance the participation of businesses, political organizations, society and the community in the process of developing and monitoring the implementation of policies and laws on climate change response.

***(5) Increase investment from the budget; promote mobilization of finance from international; mobilizing the private sector's investment participation in climate change response activities***

- Increasing investment from central and local budgets in priority areas in response to climate change, including adaptive actions related to upgrading disaster prevention and fighting infrastructure; ensure food security, water resources security and livelihoods of people, especially vulnerable areas; attaching importance to adapting to sea-level rise, in which priority is based on natural solutions (NBS) and ecosystem-based adaptation (EBA); strengthen forest protection and development. At the same time, special attention to human health under the impact of disease increases and the impact of climate change.
- Prioritizing investment in key projects and constructions on climate change that are urgent, urgent, inter-sectoral, inter-regional and multi-objective. Especially projects and works associated with the implementation of objectives and tasks in the National Strategy on Climate Change.
- Considering and allocating capital from the central budget to support localities in upgrading river and sea dykes; ensure the safety of lakes and dams; building key works on natural disaster prevention; planting coastal mangroves; building residential clusters and lines to ensure safe accommodation for people in landslide and flood areas in the Mekong Delta region; coping with floods and sea-level rise in urban areas; support to relocate people from areas prone to landslides, floods, flash floods,...
- Research, consider establishing and operating national funds to cope with climate change, such as the experience of Bangladesh and Thailand. Promoting the

effectiveness of environmental protection fund's incentives and supports with climate-friendly projects. Strengthen the collection and effective use of Disaster Prevention Funds in localities. Continue to promote the payment of forest environmental services. Continue to study and propose financial mechanisms related to climate change response.

- Enhancing capacity and knowledge to approach and proactively propose projects on climate change response to attract investment resources from the Green Climate Fund (GCF), Adaptation Fund (AF), Environment Fund global, WB, ADB, development assistance partners such as AfD, JICA, GIZ, USAID, AusAID ... Associate the implementation of the National Climate Change Strategy and make the Nationally Determined Contribution (NDC), National adaptation plan to attract international resources.
- Creating mechanisms and policies to develop the market of goods, services and technologies to ensure the harmonization of interests, creating incentives to encourage stakeholders to actively participate in the response to climate change; promote socialization and public-private partnership (PPP) to mobilize investment from non-budget sources to respond to climate change, specifically:
- *Regarding Adaptation:* developing mechanisms and policies, promoting the participation of private enterprises in the fields of Meteorology, Hydrology monitoring, forest protection and development,...
- *Regarding GHG emission reduction:* developing mechanisms and policies, promoting the participation of private enterprises in RE development, organic agriculture, low carbon, green building, green management sustainable waste; carbon market development and implementation.
- Developing and completing the legal framework and system of green credit standards; develop a list of sectors/areas to prioritize selection, appraisal, evaluation and monitoring when granting green credit; encourage and promote investment in green projects through green credit and green bonds.
- Ensuring the uniformity and uniformity in the construction, selecting projects on environmental protection, green growth, and coping with climate change to avoid wasting resources. Establish mechanisms, develop criteria and selection processes to prioritize investment in co-benefit projects on environmental protection, efficient use of resources and response to climate change.

***(6) Promote scientific and technological research and application and digital transformation; promote innovation in responding to climate change***

- The Ministry of Science and Technology shall assume the prime responsibility for, and coordinate with the Ministry of Natural Resources and Environment and other ministries, sectors and localities in, reviewing, evaluating, elaborating and successfully implementing national-level science and technology programs on climate change response and natural disaster prevention. the period 2021-2015 and the period 2026-2030. Applying research results to management practices, implementing climate change response actions.
- The Ministry of Natural Resources and Environment (MONRE) is in charge of researching and updating scenarios of climate change and sea-level rise; The ministries and localities forecast and assess the impacts of climate change to develop action plans to cope with climate change and integrate climate change into

development strategies, planning and plans; research on coping with climate change and sea-level rise in island areas.

- Ministries, sectors and localities continue to promote scientific and technological research in the fields of response to climate change, prevention of natural disasters, water resources, protection and development of forests, energy, agriculture and construction. ... In particular, it is necessary to promote research and evaluation of losses and damage caused by climate change; research on co-benefits in responding to climate change.
- Focusing on strengthening the capacity of leading research institutes related to climate change such as the Institute of Vietnam Meteorology, Hydrology and Climate Change, the Institute of Water Resources Science, the Institute of Water Resources and Irrigation, the Institute of Energy, etc.
- Promote innovation, innovation, technology transformation, encourage the application of the best available technology (BAT), digital transformation in industries and fields towards economical and efficient use of energy. , low carbon. In particular, it is imperative to apply advanced technologies such as supercritical technology, pressure fluidized bed combustion technology (PFBC) and combined cycle gasification technology (IGCC) in new coal thermal power projects. Promote research and application of underdeveloped renewable energy sources such as tides, geothermal, and biofuels.
- Promote strong access to and transfer of technical advances in crop production to develop climate change adaptive livelihoods. Paying attention to scientific and technological development links between domestic and foreign research agencies and local and enterprise needs, especially transfer, research results and scientific-technical advances in selection. create plant and animal breeds to adapt to climate change.
- Implement synchronous solutions to replicate community models with low-carbon livelihoods on a large scale. Carry out a comprehensive survey and assessment and develop guidelines for preserving and developing indigenous knowledge in response to climate change.
- Developing incentive mechanisms and policies to mobilize domestic and foreign organizations, individuals and enterprises to invest in and transfer technologies to cope with climate change; promote the implementation of JCM-based projects to encourage low carbon technology transfer from Japan.

***(7) Continue to develop a modern network of hydro-meteorological observation, monitoring climate change; developing and sharing databases and information on climate change response***

- Develop and implement a master plan for hydrometeorological observation and warning system for natural disasters and climate change monitoring; increase the density of the monitoring stations system; promote automation of the monitoring station network; increase the frequency of observation, meet forecasting requirements, weather warnings and natural disasters.
- Effectively apply the achievements of Industry 4.0, use big data, artificial intelligence (AI), Internet of Things (IoT),... actively apply remote sensing technology, GIS in the areas of climate change response.
- Building a unified climate change database from the central to local levels, which is

constantly updated, interconnected, shared and used smoothly among stakeholders. Step by step digitizing databases and information on climate change.

- Develop a coordination mechanism between MONRE and ministries/sectors and localities to provide and share information and data to jointly build a shared database related to climate change.
- Studying and building an electronic information platform on climate change managed by the Department of Climate Change, MONRE following EU model to share database information on climate change adaptation to ministries, sectors, localities, businesses and communities across the country.

***(8) Take advantage of the opportunities for Vietnam's deep integration; continue to promote international cooperation in the field of climate change response***

- Taking advantage of the opportunities of the economy's extensive international integration, from commitments in free trade agreements (FTAs) to promoting the transition to climate-friendly technologies. Low carbon. At the same time, develop and implement mechanisms, policies and technical barriers to prevent negative environmental impacts from the integration process.
- Continue to participate, sign and organize the successful implementation of international treaties on the environment and climate change. Proactively and actively participate in international climate change negotiations and conferences. Fulfil fully, responsibly, and obligations of UNFCCC member states in the implementation and reporting of NDC objectives as prescribed.
- At the national level, strengthening bilateral and multilateral cooperation with countries and international organizations on climate change; developing and implementing cooperation agreements (MOU), climate change response mechanisms; mobilize and implement international projects on coping with climate change,...
- Focusing on cooperation with neighbouring countries and in the region on transboundary issues such as water resource management, disaster prevention, search and rescue at sea, oceans ... to respond to climate change.
- For localities, mobilizing to the utmost the resources of non-governmental organizations while promoting cooperation between provinces/cities of Vietnam and provinces/cities of countries in the world. For example, the model of cooperation between Ho Chi Minh City and Osaka City of Japan in developing city climate change action plans, participation in the network of cities responding to climate change (C40) ...
- Promote the organization of conferences, fairs, training programs, training, participation in networks, programs ... with countries in the region and around the world on response to climate change in the fields. disaster prevention and search, rescue, transport, developing new forms of energy, renewable, biodiversity conservation,...

***(9) Continue to promote the active participation of the Vietnam Fatherland Front, mass organizations, socio-political organizations, professional associations and the community; strengthen close cooperation of stakeholders to improve the convergence and effectiveness in responding to climate change.***

- Enhancing the participation of the Vietnam Fatherland Front and mass

organizations (Farmers' Association, Women's Union, Veterans Association, Ho Chi Minh Communist Youth Union,...) in mobilizing people and communities to practice green lifestyle, energy-saving, low carbon, sustainable consumption, actively responding to climate change.

- The Government facilitates and supports international and domestic non-governmental organizations in developing and implementing community-based climate change projects and models, promoting traditional indigenous knowledge. , develop low carbon livelihoods, adapt based on ecosystems ... Implement projects to adjust production processes to suit climate change and rising sea levels in connection with the market, especially for large models.
- The Government encourages the voluntary participation of professional associations in industrial fields, such as energy, steel, cement, construction materials, etc., and concludes MOUs with regulatory agencies. Thereby, establishing voluntary targets to reduce GHG emissions, as has been applied in Korea and Japan. In Vietnam, over the past time, a Packaging Recycling Alliance (PRO) has been established, signing an MOU with MONRE to promote plastic waste reduction.
- Strengthening close cooperation among ministries, sectors and localities, integrating climate change into development strategies and policies to improve the convergence and effectiveness of resources to cope with climate change, including:
    + Organize forums to share experiences among ministries, sectors and localities in responding to climate change according to each group of issues such as coping with extreme weather; coping with sea-level rise; coping with drought, flood,...
    + Provinces regularly report difficulties and problems and propose solutions to deal with climate change under the functions and tasks of the ministries and sectors to promptly study and propose solutions to remove them.
    + Provinces actively implement investments in implementing climate change programs and projects on the principle of mobilizing from different sources of capital and integrating them into other programs such as the New Rural Program, sustainable poverty reduction programs;... to ensure more resources for implementation and to avoid spreading investment.
    + Develop a mechanism to coordinate the implementation of policies to cope with climate change nationwide; between regions, localities and industries/sectors based on the principle of clear and transparent assignment of responsibilities between ministries, sectors and levels, associated with their responsibilities and allocated resources. Cooperation and cooperation between regions and localities in developing carbon markets, sharing information on technologies and solutions to cope with climate change to create spillover effects.

***(10). Review, adjust, develop and apply monitoring mechanisms for implementation of the National Strategy on Climate Change; developing monitoring, reporting and evaluation (MRV) systems for climate change response***

- The MONRE takes the lead and coordinates with relevant ministries and agencies to research and reports to the Government to amend, supplement and update the National Strategy on Climate Change for the 2021-2030 period, with a vision to 2050

in line with the new context of implementing the Paris Agreement on climate change. In particular, it is necessary to focus on several keys and urgent tasks in the next 10 years as mentioned in solution section 3.3.1; It is necessary to consider and adjust several objectives/targets accordingly, such as forest cover, waste recycling, high-tech density, public transport, etc.

- Develop a monitoring and evaluation system (M&E) to implement the National Strategy on Climate Change, to have a basis for mid-term review in 2025 and the end of 2030. Develop a reporting mechanism of the ministries, sectors and localities for the Ministry of Natural Resources and Environment to synthesize and periodically report to the Government. Currently, there is no monitoring and evaluation framework.
- Establishing a monitoring and monitoring mechanism for project programs that can integrate the implementation of climate change response actions such as disaster prevention plan, green growth plan, management plan, protection and development of coastal protection forests,...
- Developing a monitoring and evaluation system for adaptation, monitoring, reporting and appraisal (MRV) activities for GHG emission reduction to have a basis for assessing the situation as well as reporting to UNFCCC, specifically:
    + *Regarding adaptation,* a set of criteria, indicators and guidelines for monitoring and evaluation of climate change adaptation activities should be developed; monitoring and evaluating international assistance activities to adapt to climate change. Develop a monitoring system, early warning and forecast of the impact of climate change on public health to implement timely responses.
    + *Regarding GHG emission mitigation,* from EU experience, Vietnam needs to: (i) Define the scope of the monitoring and evaluation framework (multidisciplinary, single sector ...); (ii) Establish a baseline for evaluation; (iii) Determine the content to be monitored, assessed and appraised; (iv) Determine the contents to be reported; (v) Identify the factors that need monitoring, appraisal and development of indicators to measure GHG emission reduction targets; (vi) identify the roles and responsibilities of key stakeholders in mitigation and adaptation. It is necessary to complete and put into practice the national GHG inventory system, to ensure it is implemented every two years.

## CONCLUSION AND RECOMMENDATION

### 1. Conclusion

The National Strategy on Climate Change, launched in 2011, is important in setting the long-term orientation of climate change (climate change) in Vietnam. The objectives and tasks of the Strategy are consistent with the strategies for sustainable development, green growth, and related industries. The promulgated national action plan has contributed to promoting the implementation of the Strategy's tasks.

Results of the evaluation of the implementation of the National Strategy and Action Plan on Climate Change show that the communication to raise awareness has been focused, the awareness of the whole society on climate change has been raised. The system of legal policies continues to be improved, organizational structure on coping with climate change is more consolidated. Resources for climate change investment continue to be concerned; scientific and technological research programs have been implemented, many results have been applied in practice. International cooperation activities have achieved many results and have mobilized considerable resources for coping with climate change.

Therefore, activities to cope with climate change have achieved certain results. Specifically, there have been many advances in natural disaster forecasting and warning; disaster prevention continues to be promoted, damage caused by natural disasters has decreased compared to the previous period. Rice area and basic food security are guaranteed. Forest protection and development continues to achieve many results. The development of renewable energy has made strong progress, especially for solar and wind power. Energy savings continued to achieve many achievements, higher results than the previous period; Energy security is guaranteed. Many models, methods and techniques of low-carbon farming have been applied in agricultural production in many localities across the country.

However, besides the achieved results, there are still many weaknesses in the implementation process. The modernization of the KTTV monitoring system is still behind schedule; Disaster prevention and fighting infrastructure have not been fully upgraded, the damage caused by natural disasters is still large. Basic surveys and management of water resources remain inadequate while risks of water security are increasing, especially in the Mekong Delta, South Central and Central Highlands. The response to flooding, sea-level rise, saline intrusion ... in general, has not met the requirements. Forest quality continues to decline, illegal deforestation still occurs in many localities, especially in the Central Highlands. Biodiversity continues to decline. The development of renewable energy and energy saving still has many shortcomings, not commensurate with the potential. Organic agriculture, low carbon is only implemented in a few models, not developed widely. Waste management is still weak, causing GHG emissions.

The cause of the limitations, objectively, is that from 2011 to 2019, climate change continues to be complicated and faster than forecast, causing many negative impacts; increased exploitation of water resources in the upper Mekong and Red River of neighbouring countries and; The country's economic growth model is not sustainable. Subjectively, the main causes include: (i) the sense of responsibility for proactive response to climate change and natural disaster prevention and response does not

meet practical requirements; (ii) legal policy system on climate change response is still inadequate; (iii) weak law enforcement organization; The effectiveness and efficiency of the law are not high; (iv) financial resources for responding to climate change are insufficient compared to requirements; has not mobilized the active participation of private enterprises; (v) application of science and technology in response to climate change, in general, is still slow, the database of climate change is still lacking in mobility, sharing capacity is low and; (vi) The National Strategy on Climate Change has some shortcomings; The urging and reporting on the implementation situation have not been given adequate attention; Many tasks and projects in the Plan were not approved.

The process of implementing the National Strategy and Action Plan on Climate Change from 2011 to 2020 has drawn 5 lessons, including:

1. The interest and commitment of the Party, the Government, the awareness of managers, businesses and people play an important role in responding to climate change;
2. Mobilizing resources from stakeholders is essential to build capacity to respond to climate change and implement specific actions;
3. Science and technology play a key role in coping with climate change. It needs to be paid more attention and considered;
4. The overlap and overlap between coping with climate change and the sectors and domains dispersing and reducing the efficiency in using resources;
5. The identification of priority sectors and areas and focusing on coping with climate change in some sensitive areas and areas with large population populations has not been fully, systematically and timely implemented.

The mission has studied the experience of 8 countries and the European Union in dealing with climate change has learned 18 lessons for Vietnam. Including 05 lessons on mobilizing resources for climate change response, 09 lessons on identifying priority issues/areas, 02 lessons on setting up the foundation and mechanism for information sharing and 02 lessons. on building a mechanism to monitor the implementation of climate change policies.

Based on the results of the assessment of the implementation situation since its inception and lessons learned from some countries, to enhance the implementation of the Strategy in the period 2021-2030, the Mission has proposed 10 groups of solutions, specifically:

1. Overcoming constraints, inadequacies, continuing to implement the tasks of the Strategy; attaching importance to several priority sectors and domains with high co-benefits; focus on coping with climate change in some key areas and areas;
2. Continuing to raise awareness and sense of responsibilities of all levels and sectors in response to climate change; turning the awareness of businesses and communities into specific actions in responding to climate change; ensure gender equity and socially disadvantaged groups in response to climate change.
3. Complete the system of policies and laws on climate change response based on modifying and developing policies and mechanisms; integrating climate change into development strategies and planning; unify plans to cope with climate change.

4. Continue to strengthen the organizational structure, enhance the role and responsibilities of local governments; improve the effectiveness and efficiency of government management in the field of the response to climate change; enhancing the coordination role of MONRE.
5. Increasing investment from the budget; promote mobilization of finance from international; mobilizing the private sector's investment participation in climate change response activities;
6. Promote research and application of science and technology and digital transformation; promote innovation in coping with climate change.
7. Continuing to develop a modern network of hydro-meteorological observation and monitoring networks; developing and sharing database and information on response to climate change.
8. Taking advantage of the opportunities of Vietnam's extensive integration process; continue to promote international cooperation in the field of climate change response.
9. Continue to promote the active participation of the Vietnam Fatherland Front, mass organizations, socio-political organizations, professional associations and the community; strengthen close cooperation of stakeholders to improve the convergence and effectiveness in responding to climate change.
10. Review, adjust, develop and apply monitoring and evaluation mechanisms for implementation of the National Strategy on Climate Change; develop a monitoring, reporting and evaluation system (MRV) for climate change response activities.

**2. Recommendations**

1. MONRE takes the lead, in collaboration with other ministries, sectors, and stakeholders, to review and submit to the Prime Minister to adjust the National Strategy on Climate Change in the 2021-2030 period to identify urgent issues, priority is attached to NDC implementation; study and propose the Government to consolidate programs, plans and schemes on climate change in the 2021-2030 period; develop and issue a monitoring and evaluation framework for the implementation of the Strategy for the 2021-2030 period;
2. The Ministry of Planning and Investment, ministries, sectors and localities continue to integrate the tasks of the Strategy, mainstreaming/integrating GHG emission reduction targets into national, sectoral, regional and provincial planning from 2021 to 2030;
3. Ministries and local authorities, governmental agencies and mass organizations, enterprises and population communities shall study and organize the implementation of 10 groups of proposed solutions/measures, ensuring the successful implementation of the National Strategy on Climate Change from 2021 to 2030./.