

**DECISION**

APPROVING THE NATIONAL STRATEGY FOR CLIMATE CHANGE UNTIL 2050

**PRIME MINISTER**

*Pursuant to Law on Governmental Organization dated June 19, 2015; Law on amendments to Law on Government Organization and Law on Local Governmental Organization dated November 22, 2019;*

*Pursuant to Resolution No. 06/NQ-CP dated January 21, 2021 of the Government promulgating the Action program for continuing implementation of Resolution No. 24-NQ/TW of the 9<sup>th</sup> Central Executive Committee on active response to climate change, extensive resource management, and environmental protection according to Conclusion No. 56-KL/TW dated August 23, 2019 of the Politburo;*

*Pursuant to Resolution No. 50/NQ-CP dated May 20, 2021 of the Government on Government's Action program for implementation of the 13<sup>th</sup> National Congress of the Communist Party;*

*At request of Minister of Natural Resources and Environment.*

**HEREBY DECIDES:**

**Article 1.** Approving the “National strategy for climate change until 2050” (hereinafter referred to as “Climate change strategy”) as follows:

**I. BACKGROUND**

Climate change has become an inevitable trend, the greatest challenge of mankind, was and is affecting all aspects: global economy, politic, foreign affair, and security. Each nation must actively adapt in order to minimize impacts while being responsible for reducing greenhouse gases according to Nationally Determined Contributions (NDC) towards the implementation of the Paris Climate Accords from 2021 in order to limit global temperature rising rate at approximately 1,5 °C by the end of this century.

Achieving net zero emission by 2050 is an essential goal of the world which is implemented primarily via extensive energy transition and low emission development. This is also the new commerce and investment “rule” established following the COP26.

Thus, greenhouse gas reduction and energy transition from fossil fuel to clean energy and renewable energy are an opportunity to promote economy restructuring, improve competitiveness of the economy, and have chances of commercial cooperation and development investment.

In recent times, climate change adaptation has yielded important initial results. However, given the climate change tendency and new global scene, climate change adaptation in Vietnam must shift onto a new stage, be placed at the center, aim towards implementation of global objectives, and implemented in an effective, practical, and transparent manner while promoting development of green, circular, and environmentally friendly economy in order to become a developed country with high income by 2045.

## **II. PRINCIPLES**

1. Climate change adaptation and implementation of net zero emission are an opportunity for sustainable development and the highest priority among development policies and the highest moral standards of governments of all levels, enterprises, and the general public.

2. Climate change adaptation is implemented in a justified and equal manner with global and national approach; implemented based on consistent institution, effective policies and regulations, science, technology, innovation, utilization of internal capacity, and international cooperation; implemented in a manner that contributes toward development of autonomous and independent economy.

3. Responding to climate change is a responsibility of the entire political system, the general public, and society. The Government acts as the leader while the general public and enterprises act as the center and actors accompanied by effective engagement of socio-political organizations.

4. Implement urgent solutions for reducing vulnerability and increasing resistance against climate change impact; at its highest priority, ensure safety and livelihood for inhabitants in regions that are potentially heavily affected; focus on developing infrastructure responding to climate change and energy transition based on regional potentials and advantages.

5. Channel resources into adapting to climate change, developing financial instruments, carbon market, promoting shifting investment to low-carbon economy; utilize resources of the Government to attract resources of organizations, enterprises, individuals, and international resources and promote public private collaborations on the basis of equality, cooperation, and mutual benefits.

## **III. OBJECTIVES**

1. General objectives

Adapt effectively, reduce vulnerability, losses, and damage caused by climate change; reduce greenhouse gas emission following net zero emission target by 2050, positively contribute and be responsible to international community in protecting global climate; utilize opportunities brought by climate change adaptation to shift growth model, increase resistance and competitiveness of the economy.

## 2. Specific objectives

### a) Adapt to climate change

Reduce vulnerability and risk posed by climate change by improving resistance and adaptation capacity of natural, economic, and social systems, reduce damage caused by natural disasters and extreme weather caused by climate change.

- By 2030:

Be able to control deterioration of water resources and land resources, ensure adequate water supply for daily activities, industrial activities, services, and important economic sectors.

Cultivars and domestic animals are shifted so as to adapt to climate change; develop sustainable value chain of agricultural, forestry, and fishery products; ensure food security and balance national nutrition.

Ensure a minimum 42% of forest coverage; area of terrestrial reserves equals 9% of land area, area of reserved sea waters and coastal sites equals at least 5% of natural area of national sea waters.

Essential infrastructures for adapting to climate change are built pre-disaster safety criteria, especially structures that prevent natural disasters, tidal waves, saltwater intrusion, storing fresh water serving daily activities and production, preventing flooding in major urban areas.

At least 95% of the population is provided with clean, sanitized water; at least 80% of the population has access to standard clean water; meet disease and epidemic prevention requirements.

Science and technology capacity for producing meteorology, hydrology forecast and early disaster warning matches with that of developed countries in Asia; capacity of supervising climate change, managing disaster risks matches with that of leading countries in the region; satisfy requirements for provision of basic climate services.

80% of the households in areas prone to natural disasters have safe houses; successfully relocate at least 70% of households locating in areas prone to flash floods or landslide to safer areas; in areas where relocation has not been successfully implemented, install surveillance and warning systems in order to promptly relocate and minimize risks in

case of natural disasters; 100% of spillways are supervised and contain warnings about depth of flood.

- By 2050:

Effectively manage water and land resources, improve environment quality to serve socio-economic development; ensure stability of national water resource. Continue to develop modern agriculture that effectively adapts to climate change and produces high added value.

Maintain forest coverage at 43% and ensure area of national forest; improve forest quality and sustainable forest management; area of sea and coastal reserves reaches 6% of natural area of national sea waters; important natural ecosystems, endangered species, rare and precious genetic resources are restored and preserved effectively; biodiversity and ecosystem services are fully assessed, used sustainably, providing essential benefits to the general public, and contributing towards ensuring ecosystem security.

Economic and social infrastructure system is developed in a synchronous and modern manner to effectively adapt to rising sea level and impact of climate change. 100% of the population is provided with clean, sanitized water; at least 90% of the population has access to standard clean water; the general public has access to healthcare services.

Level and capacity of producing disaster warning, forecast, supervising climate change, managing disaster risks match with those of developed countries; climate services meet socio-economic development requirements. Resistance of disaster prevention structures are improved so as to ensure safety in case of natural disasters according to design while taking into account impact of climate change.

The general public is safe from disasters and climate emergencies; 100% of households living in areas prone to flash floods, landslides are relocated to safer places; 100% of households living in areas prone to natural disasters have safe houses. Provide climate risk insurance for production, business, and assets of enterprises and society.

b) Reduce greenhouse gas emission

Achieve net zero emission by 2050, positively and responsibly contribute towards protection of global climate; improve economic growth quality and competitiveness.

- By 2030, total greenhouse gas emission nationwide reduces by 43,5% compared to the business as usual (BAU) scenario. In which: Energy sector reduces 32,6%, emission does not exceed 457 million tonne of CO<sub>2</sub> equivalent (CO<sub>2</sub>td); agriculture sector reduces 43,0%, emission does not exceed 64 million tonne of CO<sub>2</sub>td; land use and forestry sector reduce 70% of emission and increase 20% of carbon absorption, total emission and absorption reach at least -95 million tonne of CO<sub>2</sub>td; waste sector reduces 60,7%, emission does not exceed 18 million tonne of CO<sub>2</sub>td; industrial process sector reduces 38,3%, emission does not exceed 86 million tonne of CO<sub>2</sub>td. Facilities having annual

greenhouse gas emission of at least 2.000 tonne of CO<sub>2</sub>td must reduce greenhouse gas emission.

- By 2050, total greenhouse emission nationwide achieves net zero emission; emission peaks in 2035 and reduces rapidly. In which: Energy sector reduces 91,6%, emission does not exceed 101 million tonne CO<sub>2</sub>td; agriculture sector reduces 63,1%, emission does not exceed 56 million tonne of CO<sub>2</sub>td; land use and forestry sector reduce 90% of emission and increase 30% of carbon absorption, total emission and absorption reach at least -185 million tonne of CO<sub>2</sub>td; waste sector reduces 90,7%, emission does not exceed 8 million tonne of CO<sub>2</sub>td; industrial process sector reduces 84,8%, emission does not exceed 20 million tonne of CO<sub>2</sub>td. Facilities having annual greenhouse gas emission of at least 200 tonne of CO<sub>2</sub>td must reduce greenhouse gas emission.

#### **IV. TASKS AND SOLUTIONS**

##### 1. Actively adapt to climate change

a) Improve resistance and adaptability of natural, economic, and social system in order to ensure sustainable livelihood

- Prevent deterioration, degradation of resources and restore the resources

Focus on protecting and restoring water resources. Produce and implement national water resource and river basin planning; identify areas requiring strict protection and management of groundwater extraction activities; prevent deterioration, degradation, depletion, pollution of water sources; improve and remediate deteriorated, degraded, depleted, and polluted water sources; enhance solutions for managing, extracting, using water sources effectively and efficiently; prioritize areas prone to drought, water shortage, saltwater intrusion. Ensure water resource security; cooperate and share benefits in an equal and reasonable manner in extraction, use, protection, and development of multinational water sources. Until 2030, focus on effectively controlling degradation and depletion of water resources; improve water resource management effectiveness in a unified manner in order to meet water demand of sectors, improve environmental quality, reduce impact and prevent natural disasters related to water, and serve general public and socio-economic development.

Effectively and reasonably utilize unused land area, deposited areas in river banks, and sea shores in forest development and tree development in urban areas and industrial areas. Promote development of urban areas, industrial parks, export-processing zones in a circular model; ensure land fund to develop interregional, interprovincial waste treatment and recycling areas. Enhance solutions for renovating and protecting land, water, and biodiversity, especially degraded agricultural land; prevent and minimize land degradation and pollution. Closely monitor mineral resources used as common construction materials; prevent landslide, erosion, degradation of groundwater, and shoreline retreat.

#### - Agriculture and food security

Develop smart, modern agriculture adapting to climate change and producing high added value; ensure stable food security and national nutrition balance. Promote agricultural restructuring, adopt smart agricultural solutions adapting to climate change; utilize advantages of tropical agriculture; develop organic agriculture, eco-farming, environmentally friendly agriculture; shift plant and domestic animal compositions, practice sustainable fishery; improve agriculture resistance and adaptability to climate change in each region.

Until 2030, focus on shifting cultivar and domestic animal compositions to smartly adapt to climate change, develop agricultural, forestry, and fishery value chain sustainably; ensure food security and national nutrition balance; produce planning for agricultural commodity production and development areas in large scale following a modern manner that applies hi-tech and scientific advances; cultivar composition shifting and sustainable agriculture development must depend on natural advantages of each region and market demand; promote rearing, extracting, protecting, and developing aquatic resources with high added value; repurpose a part of paddy land to plant perennial plants or grow rice in combination with aquaculture.

#### - Forest and ecosystems

Strictly manage and protect available natural forest; enhance protection capacity of watershed forest, coastal forest; develop large timber forests and restore forest scenery; sustainably manage forest resources, protect biodiversity, and improve ecosystem services; enhance community participation in protecting, managing, and developing forests so as to improve livelihood, increase income and job opportunities in forestry. Manage ecosystems and biodiversity; improve recovery capacity of natural ecosystems, protect and preserve biodiversity from climate change impact and rising sea level.

Until 2030, protect and limit forest conversion, especially natural forests; promote recovery and improvement of quality and protection capacity of coastal forests watershed safeguard forests; reinforce and improve supervision, assessment, and response systems for forest fire; increase tree coverage in urban areas. Establish and expand operation of sea reserves and natural reserves; develop models adapting to climate change by relying on nature, ecosystem, and community; review, assess, and develop national biodiversity.

#### - Develop infrastructure adapting to climate change

Assess impact, vulnerability, risk, loss, and damage caused by climate change in the planning and investment in infrastructure development of coastal and island industrial parks, urban areas, residential areas, relocation areas on the basis of classifying areas with disaster risks and climate change scenarios. Focus on synchronously developing economic and social infrastructures, prioritize multipurpose structures adapting to climate change, and interregional structures; increase resistance and adaptability to climate change of sectors. Build, upgrade, and renovate coastal and island urban infrastructures,

concentrated residential areas, industrial parks, and relocation areas; develop urban areas, coastal urban areas, sea tourism centers, ecotourism centers, cultural and historical heritages; prevent flooding in urban areas under climate change and rising sea level.

Until 2030, prioritize development of green structures and green trees in urban areas, improvement of systems allowing water drainage, preventing flooding caused by heavy rain, inundation, rising tide caused by storms for major urban areas and coastal areas; improve and renovate traffic structures in areas highly prone to natural disasters and vulnerable to climate change; develop and build expressway network and traffic system connecting regions. Finish crucial infrastructures adapting to climate change, especially structures that help preventing natural disasters, tidal wave, saltwater intrusion, storing fresh water for daily activities and production operation, and preventing inundation in major urban areas. Build new multipurpose reservoirs in areas prone to drought, water shortage depending on natural conditions of each area in order to ensure effective socio-economic development.

#### - Medical and health

Extend solutions for supplying clean water for rural areas, mountainous regions, and coastal areas, especially those prone to storms, flood, inundation, drought, and saltwater intrusion. Develop medical and healthcare network satisfactory to epidemic control and emergent disease control. Ensure environmental sanitation conditions; invest in technology and equipment development for preventing and treating diseases driven by climate change. Build and duplicate community-based healthcare and health models in order to increase community resistance and adaptability to climate change.

Until 2030, focus on strengthening water supply infrastructure system and clean water supply capacity; develop healthcare, medical, and disease control networks prioritizing vulnerable subjects and ethnic minority regions; enhance monitoring and early warning systems for impacts of climate change on human health.

#### - Ensure social security and gender equality

Develop sustainable livelihood models, prioritize training, profession transition, technology assistance, and funding source approach for inhabitants of areas prone to climate change and its impacts. Raise awareness, knowledge, and capacity to manage natural disaster risks and adapt to climate change for female officials, members, adults, and inhabitants, especially those in areas highly prone to natural disasters.

Until 2030, increase the role, capacity, and participation of women and teenagers in adapting to climate change and managing natural disasters; promote movements and activities of raising awareness and knowledge of teenagers regarding climate change and solutions for preventing natural disasters and adapting to climate change.

b) Reduce damage caused by natural disasters and extreme weather caused by climate change

#### - Forecasting and early warning

Increase investment, upgrade, and modernization of climate change supervision, meteorology, hydrology, earthquake, tsunami monitoring systems and specialized natural disaster monitoring systems, especially those for storms, rain, flood, flash floods, inundation, landslides, bank and coastal erosion.

Upgrade and modernize technologies for supervising, analyzing, forecasting, and warning weather, natural disasters; apply advanced and modern forecasting technologies; prioritize development of quantitative precipitation forecast, flash flood, landslides warning, impact-based warning technologies; improve capacity to provide climate services and information serving natural disaster prevention. Invest in expansion of terrestrial radio station, mobile communication devices and fishing vessel management systems via satellites with adequate, accurate, and timely communication with all provinces, nationwide inhabitants and vessels at sea; effectively operate the multi-hazard warning system and integrate with national communication and media infrastructure systems.

Until 2030, focus on developing science and technology potentials to serve meteorology, hydrology, and natural disaster forecasting and warning equivalent to those of developed countries in Asia. Climate change monitoring capacity matches that of leading countries in the region; satisfy requirements for providing basic climate services. Increase private sector involvement in monitoring and supervision of extreme weather, especially the automatic rainfall measurement systems. Assess and classify areas based on climate change risks and natural disasters; produce natural disaster warning maps; develop and build national database on climate change.

#### - Natural disaster control structures

Promptly and effectively adopt solutions for controlling natural disasters, minimize risks caused by climate change, prioritize areas highly prone to storms, flood, flash flood, inundation, landslide, drought; prevent, control, and minimize impact of tidal wave, saltwater intrusion, bank erosion, coastal erosion, and rising sea level. Build and upgrade natural disaster control structures in areas prone to storms, flood, inundation, flash flood, and landslides.

Reinforce, upgrade, and complete river embankments, sea embankments, irrigation structures, and hydroelectricity structures in order to actively prevent, control storm damage, and ensure safety from additional impacts caused by climate change; prioritize ensuring safety for reservoir, dams, river embankments, and sea embankments. Build and upgrade storm moorings as per planning, integrate with fishing logistics and communication services, including in islands. Develop and strengthen structures preventing bank erosion and coastal erosion in areas where erosion transpires complicated and seriously threatens embankment structures, residential areas, and important infrastructure; combine structure and non-structure solutions, maintain social, economic, environmental effectiveness, and maximize development resources.



Strengthen the capacity to prevent flash flood, landslide, storms, major flood and extreme storms; minimize damage of drought, tidal wave, and saltwater intrusion.

- Ensure safety for human lives and assets from climate change

Produce planning, invest, relocate and rearrange residential areas in areas prone to extreme weather, especially areas with high risks of storms, flood, and inundation as a result of storms, bank erosion, coastal erosion or high risks of flash flood, landslide, land depression, geological hazards; areas where relocation has not been implemented must be monitored, supervised, and installed with warning systems to promptly evacuate and reduce risks.

Strengthen safety measures to ensure safety for the general public, especially those vulnerable in areas regularly prone to extreme weather, natural disasters; build houses resistant to natural disasters in the process of developing new rural areas; build community houses which also act as evacuation centers for the general public. Enhance capacity of search, evacuation, rescue, and security forces. Provide insurance for production, trade, and assets of enterprises and society; before 2030, provide catastrophe insurance for production and trade in high risk sector such as cultivation, fishery and aquaculture.

## 2. Reduce greenhouse gas emission

### a) General tasks regarding greenhouse gas emission reduction

- By 2030:

Build and implement action plans for reducing methane emission so as to reduce 30% of methane emission by 2030 compared to 2020. Build and implement plans for managing and eliminating substances greenhouse gas gases and substances deteriorating the ozone layer by 2030. Build and implement plans for reducing greenhouse gas of sectors based on roadmap for net zero emission by 2050. Inventory greenhouse gas and reduce greenhouse gas emission for facilities emitting at least 3.000 tonne of CO<sub>2</sub>td annually from 2022. Encourage other emitting facilities, especially those in the public sectors, to inventory greenhouse gas and reduce greenhouse gas emission.

Develop total greenhouse gas emission quota and distribute greenhouse gas emission quota to greenhouse gas emitting facilities which are mandated to inventory greenhouse gas from 2026. Develop and build online database on greenhouse gas inventory and measure, report, appraise activities that mildly reduce greenhouse gas emission. Develop national greenhouse gas emission factors for emission sources that account for 0,1% of total nationwide greenhouse gas emission; periodically update the list of emission factors serving greenhouse gas inventory.

State authorities, socio-economic organizations, and enterprises adopt solutions for reducing greenhouse gas in their daily activities, new investment, and public

procurement, including solutions for using energy efficiently and effectively, building green structures, cooling sustainably, using battery-powered electric vehicles and less-energy consuming equipment. Encourage new investment projects and existing investment projects to make the transition, apply technologies, manufacturing procedures, and provide services that emit less greenhouse gas and participate in mechanisms, cooperation in reducing greenhouse gas in accordance with regulations and law and their operational conditions.

- By 2050:

Build and implement action plans for reducing methane emission by 40% compared to 2030 by 2050. Develop and implement plans for managing and eliminating substances greenhouse gas gases and substances deteriorating the ozone layer by 2050. Continue to develop and implement plans for reducing greenhouse gas emission in sectors according to roadmap for net zero emission by 2050.

Implement greenhouse gas inventory and reduction for facilities that emit at least 2.000 tonne of CO<sub>2</sub>td annually from 2030; 500 tonne of CO<sub>2</sub>td from 2040; 200 tonne of CO<sub>2</sub>td from 2050. All facilities in the public sector must implement greenhouse gas inventory and reduction.

Turn greenhouse gas emission reduction in daily activities to a business moral issue and social responsibility of organizations and enterprises.

b) Greenhouse gas emission reduction by sectors

- Energy sector

+ In terms of energy supply:

Promote implementation of solutions for developing clean energy, using energy efficiently and effectively, and developing groundbreaking technologies in order to ensure national energy security.

Continue to develop small hydro plants selectively that meet environmental protection standards; expand medium and large hydroelectricity in order to maximize hydroelectricity effectiveness. Increase capacity of centralized solar power plants, rooftop solar power installation, land-based wind power plants, offshore wind power plants, biomass power plants, develop hydro fuel, ammonia fuel technology, tidal energy and wave energy. By 2030, renewable energy including hydroelectricity, wind power, solar power, and biomass accounts for at least 33% of electricity produced. By 2050, renewable energy accounts for at least 55% of total electricity produced.

Make the gradual transition from coal-fired electricity to cleaner energy sources; reduce percentage of fossil fuel sources and refrain from developing new coal-fired thermal electricity projects after 2030, gradually reduce coal-fired thermal electricity scale after

2035; gradually apply technology for making the transition to clean and emission-free energy in factors that are using fossil fuel and aim towards minimizing fossil fuel for energy generation by 2050; consider developing nuclear energy with modern energy and ensure safety in appropriate time.

Develop energy storing technology including energy battery, pumped-storage hydroelectricity, etc. and smart electrical grid, ensure stability and integrate renewable energy in the electrical system. Upgrade energy transmission and distribution system to increase effectiveness, reduce losses and assist effective integration of renewable energy. Research and apply carbon capture and storage technology for power plants utilizing fossil fuel and industrial manufacturing facilities.

+ Regarding energy usage:

Enhance implementation of solutions for using energy efficiently, effectively, and promote the transition to clean energy usage in industry, agriculture, transport, services, commerce, and civil sector. Increase the percentage of energy efficient and high capacity equipment in industry, civil sector, and commerce; improve capacity of boilers, electric engines, heat supply, centralized cooling, and electrical equipment; gradually replace coal with hydro in metallurgy, services, and commercial sector. Electrify agriculture and use energy efficient equipment in post-harvest agricultural production chain.

Build sun proof structures and houses, utilize green cooling solutions, rely on nature to reduce urban heat island effect, use materials that emit less greenhouse gas and recycled materials. Develop and apply regulations, standards regarding effective building energy usage. Promote energy effective solutions and creative business models for cooling and air-conditioning equipment and smart lighting system. Improve energy capacity of cold chain equipment and systems, promote the use of renewable energy in supply and cold storage system.

Use energy effectively in transport by applying standards regarding fuel consumption and emission norms. Develop and implement roadmap for making the transition to clean energy in traffic vehicles; gradually increase the percentage of electric and hydro-powered vehicles. Develop industries using clean energy, produce and regulate vehicles running on electricity and hydrogen; manufacture next-generation batteries and energy efficient semiconductors; develop green traffic infrastructure.

Restructure transport market, including the transition from road transport to inland waterway and coastal transport; make the transition from road to railway, increase railway goods transport percentage; increase transport efficiency via building and expanding road network and North-South railway network. Make the transition from personal vehicles to public vehicles; implement the metro system in major urban areas.

- Agriculture sector

Adopt solutions for reducing emission in agriculture via solutions for managing and renovating technology in cultivation, husbandry, changing land use method, developing low emission agriculture value chains and processing and preserving after harvest.

Develop sustainable organic agriculture, shift plant species composition, manage integrated crop. increase cultivation area receiving efficient and smart irrigation and long-day plants; convert cultivation model to low-emission model; improve husbandry feeds composition.

Reuse cultivation by-products and treat husbandry wastes to produce organic fertilizer, and generate biogas; utilize composting and reduce chemical fertilizer; replace urea fertilizer with low emission fertilizer.

Adopt advanced solutions in agriculture production in order to reduce methane emission from cultivation and husbandry. Reduce post-harvest food lost and related emission by improving agricultural logistics and developing sustainable cold chains.

#### - Forestry and land use

Protect existing natural forest in mountainous regions and coastal areas in order to closely monitor forest conversion, forest loss, and degradation to reduce greenhouse gas emission. Plant new protective forest and special-use forest with native species to increase carbon absorption. Improve quality and storage of poor carbon stocks in natural forest by planting more.

Improve capacity and quality of cultivated forests in order to increase carbon absorption and reduce emission by applying technological advances, converting short rotation cultivated forests to long rotation cultivated forest; reduce extraction of cultivated forests.

Manage forest sustainable and forest certification in order to reduce emission via controlling forest loss, degradation, fire, and biomass fire; increase greenhouse gas absorption by increasing forest quality, preserving biodiversity, and improving ecosystem services. Develop and duplicate agroforestry models by planting additional timber trees to increase carbon absorption and prevent land degradation prioritizing slopes.

#### - Waste sector

Implement solutions for managing and reducing waste from production to consumption, expand responsibilities of manufacturers; increase reuse and recycling of waste.

Develop models for concentrated management of solid waste Adopt advanced solutions in treating solid waste, including: landfill gas (LFG), semi-aerobic landfill; compost production from organic wastes; incineration of solid wastes for electricity generation; production of pellet fuel from solid waste.

Adopt advanced solutions in treating wastes and wastewater in order to reduce methane emission.

- Industrial processes and use of industrial products

Renovate, develop, and apply technologies in manufacturing construction materials; develop and use energy efficient construction materials and green materials in housing and commerce. Replace fossil coal with natural gas in production of tiles; use alternative materials in glass manufacturing. Implement solutions for crushing slags, ashes, Puzzolana, alternative limes, and reduce clinker percentage in cement production.

Apply endothermic dissolution technology and new technologies in order to reduce N<sub>2</sub>O emission in chemistry. Apply carbon capture technology in cement, chemical - fertilizer manufacturing and metallurgy. Apply molten oxide electrolysis technology in steel smelting; use hydrogen instead of coke in “green” steel smelting from 2035.

Develop standards and regulations on green buildings, green urban areas, ensure that by 2050, standards and regulations on green buildings and green urban areas are mandatory for all new buildings.

Gradually reduce the use of HCFC and HFC refrigerants in cold chains, refrigeration system, and building air-conditioning system; improve cooling effectiveness, reduce cooling demand and use of refrigerants via building design and passive cooling; promote the recovery, reuse, disposal, and recycling of refrigerants and move towards using refrigerants with low global warming potentials (GWP).

3. Develop institutions and utilize potentials, resources for responding to climate change effectively.

a) Develop, finalize institutions and policies

- Develop and finalize institutions, policies, and regulations and law on climate change, national standards and regulations to meet net zero emission by 2050. Review and amend field-specific laws, strategies, planning, and plans for development of 2021 - 2030 suitable with the Strategy for adapting to climate change and reducing greenhouse gas emission. Restrict energy-consuming sectors that yield low GDP, refrain from exporting energy-consuming products; encourage hi-tech, energy-efficient industries; restrict wood extraction and export.

- Develop plan for implementation of the Glasgow Declaration on forest and land use, roadmap for making the transition to vehicles using clean energy; plan for implementation of the Global Coal to Clean Power Transition Statement; finalize policies, marine spatial planning serving development of offshore wind power.

- Develop regulations, procedures, technical guidelines regarding reduction of greenhouse gas and greenhouse gas inventory, “measurement, reporting, appraisal”

system for reduction operation of greenhouse gas on a nationwide, disciplinary, and grassroots level. Institutionalize low-carbon development models and circular economy models; effectively apply carbon value assessment tool, including carbon tax, greenhouse gas emission trading and carbon credit, connect with regional and global market.

- Develop and finalize interregional and interdisciplinary cooperation models in adapting to climate change: regulations on taking on responsibilities in adapting to climate change for state authorities, socio-economic organizations and enterprises. Finalize regulations on managing climate change adaptation operation; establish and operate the system for supervising and assessing climate change adaptation operation on nationwide, sectorial, and provincial levels. Promote the development of climate risk insurance market. Develop criteria for assessing climate risks; identify projects and tasks for adapting to climate change; assess effectiveness of activities adapting to climate change. Integrate climate change adaptation and greenhouse gas emission reduction in urban development planning in order to reduce energy and resource demand, increase adaptability of cities to climate change.

- Develop and promulgate policies incentivizing investment in emission reduction; trade policies and policies promoting sustainable development; policies on sustainable production and consumption without causing forest loss and degradation; policies on sustainable forestry, food security, and preventing harm to the environment.

#### b) Communicate, raise awareness and attract community participation

- Diversify information channels, utilize advantages of digital technology, increase communication quality on mass media in order to accurately and promptly provide information on meteorology and hydrology forecasting, natural disaster forecast and warning to state authorities, organizations, and households.

- Develop and implement national communication programs, organize training courses for authorities, social organizations, and community in order to raise awareness and update on natural disasters, climate change adaptation, and greenhouse gas emission reduction aiming towards net zero emission, information on future technology and relevant skills; guide, disseminate knowledge, and organize skills regarding natural disaster prevention, especially skills for responding to serious natural disasters.

- Preserve and utilize traditional culture, local knowledge, prioritize the role of craftsman in responding to climate change, disseminate and duplicate activities, models applying environmentally friendly technologies, technologies using clean energy and renewable energy, adapting to climate change and emitting less greenhouse gas, community models for adapting to climate change and community models for reducing greenhouse gas.

- Revise, improve, update, and integrate knowledge regarding climate change adaptation, minimize disaster risks and greenhouse gas in national education program; promote climate-friendly lifestyle in order to protect earth's climate.

- Communicate, raise awareness, and attract community participation in sustainable forest and agriculture development, restoration of mangrove forest ecosystem, community-based and nature-based livelihood models and models adapting to climate change while strengthening greenhouse gas absorption models and biodiversity preservation. Publicize information, encourage carbon labeling, use products and services that utilize clean energy, emit less carbon, are friendly to the environment; label products that do not use substances that potentially cause global warming.

#### c) Develop human resources

- Develop and implement programs for training, refresher training, and retraining regarding climate change adaptation and minimizing disaster risks, using renewable energy and new energy; education and training programs integrating climate change adaptation in all education levels.

- Increase enterprises' capacity to access and participate in participating programs and projects following carbon credit trading and offset and developing carbon market.

- Research, review, inventory data, and periodically forecast human resource demand and supply capacity serving climate change adaptation; popularize and provide information on job market relating to climate change.

- Develop high quality experts regarding greenhouse gas inventory, greenhouse gas reduction appraisal, carbon market development, ozone layer protection, and climate change adaptation satisfactory to management demands and roadmaps, regulations of Vietnam and international treaties regarding climate change adaptation to which Vietnam is a signatory.

#### d) Develop science and technology

- Review, develop regulations and policies relating to promotion of technology transfer and innovation to serve climate change adaptation; assess the demand for technologies for reducing greenhouse gas emission; develop the list of clean, low carbon emission technology in manufacturing sectors to promote technology application, transfer, and mobilize investment.

- Organize scientific research, application, and technology transfer to help ministries, departments, and local governments implement tasks and solutions adapting to climate change in order to achieve net zero emission by 2050. Research development of source technology in climate change adaptation; propose policies for resolving barriers in order to allow enterprises to research climate change adaptation; promote research and development in national enterprises and corporations regarding low emission development; establish major corporations that are capable of scientific research and mastering of source technology.

- Enhance scientific research, technology development and transfer, prioritize hi-tech, new and modern technology in making the transition to cleaner, more efficient, and more effective energy production; use new, less-emission, climate-friendly fuel and materials; treat waste; capture and bury carbon; manage, and effectively extract resources; develop and apply renewable energy, new energy, and energy storage; receive, apply, and develop nuclear reactor technology; develop plant and domestic animal species adapting to climate change.

- Effectively apply cloud computing, big data, IOT, AI, blockchain, etc. in developing, implementing solutions for adapting to climate change, forecasting, estimating climate change impact on natural and social systems in order to turn challenges into development opportunities, and assisting ministries, departments, local governments, organizations and individuals in improving climate change adaptation capacity.

- Research additional development, update technical regulations and standards regarding planning and design of green structures and infrastructures taking into account climate change impact in the long term; technical standards and regulations relating to new energy and renewable energy.

- Integrate researches for solutions applying technology reducing greenhouse gas emission, adapting to climate change suitable for Vietnamese conditions in national science and technology tasks. Prioritize research and implementing solutions adapting to climate change together with reducing greenhouse gas emission and implementing socio-economic development.

#### dd) Mobilize financial resources for climate change adaptation

- Review and amend policies, regulations to attract investment for climate change adaptation, encourage participation of enterprises and the general public in activities adapting to climate change, reducing greenhouse gas emission, developing low-emission community, managing and effectively using resources, and protecting the environment together with sustainable livelihood development.

- Develop procedures for distributing state budget and producing public investment plan, state budget plan and estimates in order to effectively distribute and use activities adapting to climate change; prioritize investment resources from state budget or assistance, non-refundable grant, and concessional loans to implement construction and projects adapting to climate change that share benefits with socio-economic development and greenhouse gas emission reduction.

- Develop and adopt policies incentivizing investment, mechanisms, and economic instruments in order to utilize social resources and financial resources of enterprises for climate change adaptation; determine programs and projects that yield high economic benefits and contribute towards climate change adaptation to allow enterprises to implement via cooperation between the government and enterprises, between domestic



investors and foreign investors, prioritize projects applying technology and solutions moving from fossil fuel to renewable energy and improving energy efficiency.

- Review and amend policies, regulations in resolving difficulties regarding procedures, attracting investment flows, green financial flows of international financial institutions and credit institutions into Vietnam; attract international corporations and multinational corporations to Vietnam for cooperation in projects, especially projects for converting production and energy consumption.

- Develop regulations and guidelines on supervising financial sources and assisting climate change adaptation satisfactory to Vietnamese regulations, United Nations Framework Convention on Climate Change, Paris Accords, and international financial mechanisms for climate change adaptation to which Vietnam is a signatory.

e) Promote international cooperation in climate change adaptation

- Promote climate diplomacy, active participation in regional and global cooperation regarding climate change adaptation, especially climate financial mechanisms; improve multilateral and bilateral diplomacy, including cooperation in climate change adaptation in global, regional, and sub-regional mechanisms; connect with governments, organizations, financial institutions, local governments, foreign enterprises, and international campaigns in exchanging information, sharing experience, knowledge, skills, and mobilizing support of development partners, organizations, and individuals for climate change adaptation, low-emission and sustainable development on the basis of equality, cooperation, and mutual benefits.

- Adequately implement obligations under international treaties to which Vietnam is a signatory; participate, contribute, propose ideas in regional and international mechanisms to which Vietnam is a signatory; participate in initiating and driving new cooperation models. Negotiate and develop partnership relationship and cooperation mechanisms to attract resources and international support for Vietnam's implementation of international commitments regarding climate change adaptation.

- Promote international cooperation in researching, developing, and applying potential technologies to reduce greenhouse emission such as carbon capture and storage, green hydrogen, energy battery, nuclear energy, and other new potential energy; implement solutions adapting to climate change and rising sea level; forecast, warn, and adopt appropriate response measures for transboundary impact of worldwide climate change adaptation activities. Periodically update and implement NDC, National plan for adapting to climate change, national reports on climate change.

## **V. IMPLEMENTATION**

1. Ministry of Natural Resources and Environment shall

- Take charge and cooperate with ministries, ministerial agencies, Governmental agencies, and People's Committees of provinces and central-affiliated cities in organizing implementation of the Climate change strategy on a nationwide level; organize intermediate conclusion after 5 years and 10 years and request the Prime Minister to amend the Climate change strategy depending on practical situations.

- Take charge and cooperate with ministries and local governments in determining key programs, projects, and tasks to implement international commitments regarding climate change and achieve net zero emission in specific stages and presenting to the Prime Minister for consideration. Guide integration of climate change adaptation in development strategies and planning.

- Take charge guiding, inspecting, supervising, assessing, and reporting to the Prime Minister on implementation of the Climate change strategy annually, after 5 years, after 10 years and concluding the Climate change strategy implementation.

## 2. Ministry of Planning and Investment shall

- Take charge and cooperate with ministries and local governments in reviewing and updating national strategies and planning for the 10-year period and 5-year socio-economic development plan to stay consistent and conforming to determined goals.

- Take charge reviewing and amending mechanisms, policies on investment; regulations on management and use of ODA and concessional loans of foreign donors to resolve procedural difficulties, allow investments and green financial flows of green financial institutions and credit institutions in Vietnam.

- Take charge and cooperate with relevant ministries, departments in balancing, distributing investment fund from state budget for activities adapting to climate change; mobilize and coordinate domestic and foreign funding sources serving the implementation of the Climate change strategy.

## 3. Ministry of Finance shall

- Take charge and cooperate with relevant ministries, departments, and authorities in reviewing, amending, and requesting competent authorities to approve policies on finance, investment, enable the implementation of the Strategy.

- Rely on regulations to balance and distribute state budget, recurrent expenditure to implement the Climate change strategy.

## 4. Ministry of Industry and Trade, Ministry of Transport, Ministry of Agriculture and Rural Development, and Ministry of Construction shall

- Review and amend laws, strategies, planning, and plans to match climate change adaptation objectives and greenhouse gas emission reduction; develop and implement

plans for reducing greenhouse gas emission according to roadmap to achieve net zero emission by 2050.

- Increase implementation capacity for the Paris Accords and Vietnam's statements, commitments at the COP26. Develop regulations, procedures, and technical guidelines regarding greenhouse gas inventory, "measurement, reporting, appraisal" system for greenhouse gas emission reduction.

- Organize greenhouse gas inventory of each sector and develop reports serving greenhouse gas inventory on a nationwide scale as per the law.

- Develop national standards and regulations on greenhouse gas emission reduction and inventory; technical standards and regulations relating to sectors and conforming to net zero emission by 2050 objective.

5. Ministries, ministerial agencies, and governmental agencies shall

- Organize developing and promulgating action plans for adapting to climate change every 10 years; integrate objectives, tasks, and solutions in the strategies, planning, and plans for sector development depending on practical scenarios.

- Organize implementation, supervise, and assess implementation results of tasks set forth under the Climate change strategy to ensure consistency; prioritize budget for activities implementing the Climate change strategy.

- Actively develop, communicate, raise awareness, and provide training regarding climate change adaptation within their tasks and functions.

6. People's Committees of provinces and central-affiliated cities shall

- Organize development and promulgate action plans adapting to climate change every 10 years on a provincial level; integrate objectives, tasks, and solutions in the provincial planning and socio-economic development plans depending on the province's conditions.

- Utilize potentials and advantages of each province to implement tasks, solutions for adapting to climate change, reducing greenhouse gas, and participate in programs and projects following carbon credit trading and offset mechanism.

- Assess impact, vulnerability, risks, loss, and damage caused by climate change; strengthen inspection and supervision for activities reducing greenhouse gas emission of emitting facilities.

- Organize implementation, supervise, and assess implementation results of tasks set forth under the Climate change strategy to ensure consistency; prioritize budget for activities implementing the Climate change strategy.

- Develop, communicate, raise awareness, provide training, increase quality, and restructure officials, public officials, and public employees engaging in climate change in provinces.

7. Research institutes and universities, within their tasks and solutions, shall develop, recommend ministries, departments, and local governments, and implement research, application, and lecturing contents to contribute towards climate change adaptation and greenhouse gas emission reduction.

8. Vietnamese Fatherland Front, socio-economic organizations, socio-occupational organizations, and enterprises, within their functions and tasks, shall actively engage in climate change adaptation; cooperate with ministries, departments, and local governments in implementing, supervising, and assessing the Climate change strategy.

9. Encourage participation of relevant parties, including enterprises, social organizations, NGOs, national and international organizations to cooperate with ministries, departments, and local governments and implement, propose ideas to drive climate change adaptation and greenhouse gas emission reduction, participate in supervising and assessing the Climate change strategy.

## **VI. FUNDING SOURCES FOR IMPLEMENTATION**

Funding sources for implementation of the Climate change strategy consist of funding sources in state budget, enterprise capital, international funding, and other legally mobilized funding sources as per the law.

- For funding sources from state budget, comply with applicable decentralization. Ministries, departments, and local governments, within their objectives and tasks set forth under the Climate change strategy, shall develop investment projects or make expenditure estimates for specific tasks and implement as per applicable laws.

- Promote mobilization of financial resources of domestic and foreign organizations, individuals, and enterprises for implementation of the Strategy as per the law; integrate tasks assigned to ministries and local authorities in other relevant national target programs.

**Article 2.** This Decision comes into force from the date of signing and replaces Decision No. 2139/QĐ-TTg dated December 5, 2011 of the Prime Minister approving the National strategy for climate change.

**Article 3.** Ministers, heads of ministerial agencies, heads of Governmental agencies, Chairpersons of People's Committees of provinces and central-affiliated cities and heads of relevant agencies are responsible for implementation of this Decision

**PP. PRIME MINISTER  
DEPUTY PRIME MINISTER**

**Le Van Thanh**

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