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Department of Climate Change

Private Sector Engagement in National Adaptation Plan Development and Implementation in Vietnam

Department of Climate Change, MONRE

Hanoi, June 2020



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About the NAP Global Network

The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates sustained South-South peer learning and exchange, supports national-level action on NAP development and implementation, and enhances bilateral support for adaptation and climate-sensitive sectors through donor coordination. The Network's members include participants from more than 140 countries involved in developing and implementing National Adaptation Plans, as well as 11 donor members. Financial support for the Network has been provided by Austria, Canada, Germany, and the United States. The Secretariat is hosted by the International Institute for Sustainable Development (IISD). For more information, visit www.napglobalnetwork.org.

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Foreword

Climate change increases risks, heightens vulnerabilities, and affects all economic sectors of countries around the world. This is especially true in developing countries, including Vietnam. According to the World Bank, by 2030, the estimated cost for recovering damage caused by climate change and natural disasters could be billions of U.S. dollars per year in low- and middle-income countries [1]. In this context, public budgets will not be enough. Therefore, it is necessary to involve the private sector in developing and implementing the climate change National Adaptation Plan (NAP) process. Part of the cost of implementing the NAP process will be mobilized from the private sector, but the private sector will also be tasked with the development of the innovative products and services needed to increase resilience due to climate change impacts. Therefore, businesses in areas that are vulnerable to climate change can enhance resilience or create new products, services, and business models to support climate resilience. While there is a substantial challenge in private markets, there is also a substantial opportunity. Businesses stepping up to increase their resilience or to create new climate-resilient products, services, and business models will be well positioned to safeguard their own future as well as take the lead on transforming entire economic systems. The private sector needs to identify challenges to building their future development, as well as take the lead in building resilience to climate change and sustainable development.

For that reason, promoting the participation of the private sector in climate change activities is necessary in order to enhance the climate change adaptation capacity of both the private sector and the community at large. This process not only helps to minimize the impacts of climate change but also helps businesses take advantage of opportunities brought about by climate change and create adaptation resources for the whole of society. In order to carry out the tasks assigned by the government and the prime minister, the Ministry of Natural Resources and Environment has developed a National Plan to Adapt to Climate Change in the 2021–2030 period, with a Vision to 2050. This study was conducted with the support of the NAP Global Network with the aim of assessing the impact of climate change on a group of businesses representing high-risk sectors affected by climate change—such as agriculture and fisheries, tourism, services, and small and medium-sized enterprises—and to identify challenges and opportunities for climate change adaptation in the private sector. On that basis, the study will propose specific strategies, solutions, and projects to encourage the private sector's active participation in climate change adaptation

Table of Contents

| | |
|--|-----------|
| 1. Background | 1 |
| 2. Methodology and Approach | 4 |
| 3. Key Findings | 5 |
| 3.1. Vietnamese Business Sector Landscape | 5 |
| 3.2. Impact of Climate Change and Disasters in Different Regions of Vietnam | 5 |
| 3.3. Impact of Climate Change and Perception in the Private Sector | 8 |
| 3.4. Policy and Institutional Landscape Review | 9 |
| 3.5. NAP Progress and the Gap in Private Sector Engagement in Vietnam | 16 |
| 4. Gaps and Challenges | 19 |
| 4.1. SMEs and Climate Risks | 19 |
| 4.2. Natural Disaster Prevention Fund and Private Sector Participation | 21 |
| 4.3. Climate Change and Disaster Insurance | 22 |
| 5. Strategies for Engaging the Private Sector in Climate Change Adaptation Development and Implementation | 25 |
| 5.1. Suggestions From the Private Sector: Results from the surveys | 25 |
| 5.2. Consultation With the Private Sector During NAP Revision Progress | 26 |
| 5.3. Proposed Mechanisms to Attract Investment From the Private Sector in NAP Implementation | 31 |
| References | 35 |
| Annex 1. List of Tasks for Implementation of the National Adaptation Plan (NAP) in the period 2021–2030, Vision to 2050 | 38 |
| A. Strengthening State Management and Resources | 38 |
| B. Natural Disaster Prevention | 45 |
| C. The Environment and Biodiversity | 50 |
| D. Water Resources | 52 |
| Annex 2. List of Interviewed Companies | 56 |

Abbreviations

| | |
|----------------|---|
| BOT | build, operate, and transfer |
| CC-SLRS | <i>Climate Change and Sea Level Rise Scenarios 2016</i> |
| EPF | Environmental Protection Fund |
| FDI | foreign direct investment |
| GDP | gross domestic product |
| MARD | Ministry of Agricultural and Rural Development |
| MONRE | Ministry of Natural Resources and Environment |
| MSME | micro, small and medium-sized enterprise |
| NAP | National Adaptation Plan |
| NDPC | Natural Disaster Prevention and Control |
| NDPF | Natural Disaster Prevention Fund |
| NGO | non-governmental organization |
| ODA | official development assistance |
| PPP | public-private partnership |
| SMEs | small and medium-sized enterprises |
| RMF | Road Maintenance Fund |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |

1. Background

Vietnam is a low-middle-income country, with a population of 97.5 million, of which more than 60% is living in rural, coastal, and mountainous areas. According to Germanwatch's report, published at the 24th United Nations Conference on Climate Change, Vietnam has increased by three scales, from eighth (statistics between 1998 and 2016)¹ to sixth (as of 2017) in Climate Risk Index (CRI) ranking and was ranked the highest in terms of climate risks among Association of Southeast Asian Nations countries [2].² In the past two decades (1998–2017), there have been about 220 natural disasters and extreme weather events in Vietnam, contributing to an average of 296 deaths per year and causing economic losses of about USD 2 billion (annual average) [2].

The main manifestations of climate change are evident through changes in temperature, rainfall, sea-level rise, climate-related natural disasters, and extreme weather events. The *Vietnam Special Report on Managing the Risk of Extreme Events and Disasters to Advance Climate Change Adaptation* (SREX) projects that temperatures will increase across all seven of its sub-regions, and, by 2100, the average annual temperatures will rise by an average of 2.3°C [3]. According to the *Climate Change and Sea Level Rise Scenarios 2016* (CC-SLRS) by the Ministry of Natural Resources and Environment (MONRE), rainfall will decrease in the summers and dry seasons throughout Vietnam, but it will increase in Central Vietnam in all other seasons. Thus, although the total annual rainfall is projected to increase, the dry season will be drier (due to the reduction of rainfall in the dry season), and the rainy season will more likely be wetter and flooded (due to the increase of rainfall in the wet season) [4]. In addition, sea-level rise aggravates the impact of saline intrusion and flooding in the Mekong Delta and coastal areas because rivers cannot exit into the sea as they have in the past. This will be a great threat to agriculture and other industries, such as tourism, transportation, and energy.

With a coastline of 3,200 km, approximately 70% of Vietnams' population lives in low-lying areas close to the coastline exposed to the risk of disaster, especially flooding [5]. According to CC-SLRS, droughts in the dry season occurred more frequently, the number of strong storms increased, the effects of El Niño and La Niña showed increasing trends, and the number of extremely cold days decreased but there were abnormal cold spells [4]. There were 44 storm events of level 12 or higher (according to the Beaufort scale) in the East Sea in 2004–2018, an increase of 1.4 times compared to the 1990–2003 period (which saw 35 storm events of level 12 or higher) [6]. Extreme weather events and natural disasters are predicted to occur with greater intensity and complexity, not following previous patterns [7]. As witnessed in 2017, Typhoon Damrey affected 4.3 million people and left 107 people dead across 15 provinces from central to southern areas [8]. It proved that the risk of storms and floods now threaten all areas of Vietnam, even those parts of the coast historically untouched by typhoons. In 2016, continuous heavy rainfall in early August triggered flooding and landslides in several districts in the Northern provinces, causing destructive damage to houses, transportation,

¹ Annual average

² Vietnam's ranking is largely based on a total of 298 deaths and USD 4.05 billion or 0.63% of its gross domestic product (GDP) in economic losses from tropical storms, floods, and drought in 2017. The deadliest storm, Damrey, hit the Vietnamese coast in November 2017, killing 106 people.

irrigation system, and agricultural production, and leading to losses of more than USD 23.68 million [9]. Furthermore, even storms that do not make landfall can be devastating. In 2009, tropical cyclone Ketsana brought heavy rain to the central region of Vietnam, which caused an estimated USD 900 million in damage and had a negative impact on GDP of 2.9% [10]. In fact, interviews with local businesses in Central Vietnam revealed that winds from storms could be even more damaging to coastal areas than the water.³

In addition to the geographical location and population distribution in coastal areas, Vietnam's vulnerability to climate change is also exacerbated by the impact of rapid urbanization. Urbanization is expected to increase by a further 58% by 2050 [11], which risks further straining Vietnam's preparedness for natural disasters. Both in cities and rural areas, infrastructure is not keeping up (e.g., construction and upkeep of dikes, embankments, riverbanks, irrigation canals, diversion dams, roads, bridges, culverts, etc.). Infrastructure has been showing signs that it is not resilient enough: in four provinces in Central Vietnam alone, over the last 10 years, 54% of the damage was to the transportation infrastructure (approximately USD 70 million), and recovery and reconstruction cost approximately USD 143 million to replace what was lost with more resilient structures [12]. Many small and mid-sized cities lack development plans, and even larger cities are allowing development without environmental impact assessments. Poorly planned urbanization and disruptive activities like sand excavation in high-risk coastal areas are also increasing the severity of floods in coastal areas [13].⁴ Recent surveys conducted by the United Nations Development Programme (UNDP) for businesses in Quang Nam and Khanh Hoa provinces have found evidence of increased damage caused by storms and floods as a result of the impact of urbanization, such as new roads and construction built along the coast that are diverting water from its natural flow [14].

Vietnam is expected to incur USD 1.4 billion, or 0.8% of its national GDP, in direct losses to private and public assets due to floods and typhoons [15]. The government's contingent liability losses are expected to be approximately USD 278 million. In the next 50 years, Vietnam has a 40% chance of experiencing a more serious economic loss exceeding USD 6.7 billion and a 20% chance of experiencing a loss exceeding USD 8.1 billion [16]. Studies on the impact of severe weather events by the Central Institute for Economic Management, Ministry of Investment and Planning have demonstrated that the devastating economic effects of such storms are felt throughout the country [14]. However, some provinces will be impacted by extreme weather events more severely than others. The Vietnam Catastrophe Risk Assessment and Modeling project has produced risk profiles for each of Vietnam's provinces and three cities: Danang, Hanoi, and Ho Chi Minh City [17]. But it would be wrong to assume that the impact would be limited to these cities. Hence, to sustain Vietnam's economic growth, it is increasingly necessary to think systemically and to improve its resilience to disasters nationwide, regardless of where natural disasters may hit.

Climate change costs Vietnam about 2%–6% of its GDP annually and is expected to reach over 6.5% of GDP by 2050 [18]. As an overall trend, it is clear that the financial request for a response to climate change in Vietnam will increase fairly rapidly until 2050 [19]. The annual cost of adapting to climate change is likely to be 3%–5% of GDP per year by the year 2030 [19]. Specifically, it is estimated that Vietnam needs USD 5.68 billion for 2016–2020 (equivalent

³ Cited from interviews with local businesses in Central Vietnam.

⁴ Deputy Minister of Agriculture and Rural Development Hoang Van Thang cited many examples of infrastructure projects that increase climate risks and unsustainable development.

to 2% of GDP⁵) and USD 30 billion for 2016–2030 to respond to climate change, of which 70% is expected to come from non-State sectors [18]. However, with competing demands for various resources, public spending on climate change response is still low, estimated at only 0.1% of Vietnam's GDP (accounting for 2010–2013). This funding is directed mainly at projects on strengthening irrigation and transportation systems, which only have indirect benefits in terms of adaptation and mitigation [18]. The current financing sources for climate change in Vietnam come primarily from the State budget and from foreign loans/aid (mainly through Official Development Assistance [ODA]⁶). Meanwhile, although the private sector is considered to play an important role in climate change adaptation investment, there is still no mechanism or policy to encourage and mobilize contributions from the private sector. According to The Asia Foundation, in Vietnam, small and medium-sized enterprises (SMEs) employ 77% of the workforce and produce over 40% of GDP [20]. Their ability to recover after a disaster is essential to revitalizing communities and livelihoods.

The private sector is both impacted by climate change and an important resource to promote climate change adaptation activities. The impacts of climate change are both a challenge and an opportunity for the private sector. The requirements of adapting to climate change, for example, may offer up new opportunities for innovation and creativity with new material sources, new fields of investment and production, etc. However, research by The Asia Foundation in 2011 shows that, despite the enormous losses from climate change and natural disasters, the majority of surveyed enterprises are still not ready to adapt to climate change. Specifically, more than 50% of surveyed businesses do not have an adaptation plan in case of an emergency or disaster leading to huge losses. Although there are still no accurate statistics on the damage caused by natural disasters to micro, small and medium-sized enterprises (MSMEs), the report indicates that the damages have certainly reached thousands of billions in Vietnamese dong, causing many businesses to lose their assets and leading to bankruptcy and unemployment [21]. In addition, regardless of its great potential, many members of the private sector itself lack awareness of their own missions and roles in climate change adaptation [20].



Photo: CIAT/NeilPalmer

⁵ Author calculated: average according to the Bureau of Statistics data on annual GDP for the period 2016–2020.

⁶ The government issued Decision No. 1489/QĐ-TTg on 6/11/2018, approving the orientations for ODA and concessional loan attraction of donors in the public sector, including adaptation to climate change. Specifically, projects on climate change response are identified as one of the five priority groups to be allocated foreign grants and ODA loans.

2. Methodology and Approach

To support the private sector engagement effort, this assessment was conducted through a series of structured interviews and surveys among 34 companies in three sectors (aquaculture, agriculture, and tourism) in three geographic regions of Vietnam that are vulnerable to climate change (please see more details in Annex 1). The researchers carried out interviews in different types of businesses, of which 44% are limited liability companies, 38% are joint stock companies, and the rest are cooperatives and State companies (11.8%) (which are in the process of equitization).

The MONRE hosted the first consultation workshop on November 14, 2019, with 30 participants from the private sector, associations, and academia. Most of the participants were CEOs, directors, and senior staff of MSMEs.

The second consultation workshop was held on June 23, 2020, with the aim of getting specific inputs on concrete solutions/projects that the private sector can contribute and benefit from throughout the NAP implementation phase. There were 25 participants representing private companies (50%), government offices (20%), academia (10%), international non-governmental organizations (10%), banks and green bond initiatives (5%), and local non-governmental organizations (NGOs). The participants made great efforts to contribute to macro strategies on the roadmap for private sector participation in NAP implementation. This will help with the effective implementation of the NAP.

The following sections will present key findings from this research (sections 3.1 to 3.5), then provide an analysis of current gaps and challenges regarding the involvement of the private sector in climate change adaptation (sections 4.1 to 4.3). Sections 5.1 to 5.3 will provide a list of strategies for engaging the private sector in climate change adaptation.

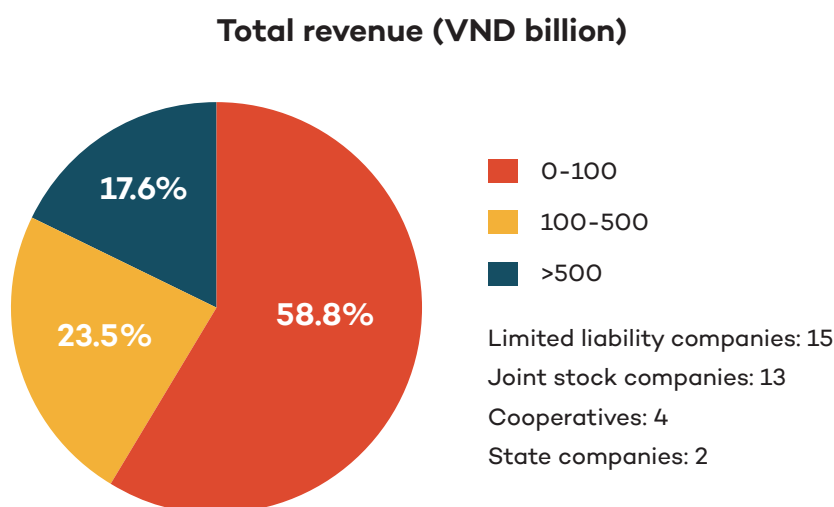


Figure 1. Types of companies that participated in the surveys and their total revenue

3. Key Findings

3.1. Vietnamese Business Sector Landscape

According to data from the National Business Registration Database, as of December 31, 2019 (before the COVID-19 pandemic), there were 758,610 operating enterprises nationwide.

By economic sector: As of December 31, 2019, there were 508,770 enterprises in the service sector (67.1%); 239,755 enterprises in the industrial and construction sectors (31.6%); and 10,085 enterprises in the agriculture, forestry, and fishery sectors (1.3%). This is contrasted to 2018, when there were 419,262 operating enterprises in the service sector (68.7% of the national enterprises); 184,531 enterprises in the industrial and construction sectors (30.2%); and 6,844 enterprises in the agriculture, forestry, and fishery sectors (1.1%).

By types of enterprise: As of December 31, 2018, there are 2,260 active state-owned enterprises (0.4% of the total enterprises), of which, 1,097 enterprises have 100% state capital funding (0.2%); 591,499 enterprises are non-state enterprises; and 16,878 are foreign direct investment (FDI) enterprises, accounting for 2.7% of enterprises.

By enterprise size: The micro and small enterprises sectors account for the highest number. As of December 31, 2018, there were 382,444 micro-sized enterprises (62.6%); 189,879 small-sized enterprises (31.1%); 21,306 medium-sized enterprises (3.5%); and 17,008 large-scale enterprises, accounting for only 2.8%.

3.2. Impact of Climate Change and Disasters in Different Regions of Vietnam

Over the past 50 years (1968–2017), annual average temperatures in Vietnam increased by about 0.5 to 0.8°C [4]. Temperatures for winters and northern climate zones increased at faster rates compared to summer and southern climate zones, respectively [4].

As indicated in the CC-SLRS, all geographic regions of Vietnam are vulnerable to climate change. However, the climate-related disasters are different in each region. While the Mekong Delta is affected by slow-onset disasters such as drought and salinity intrusion, the Central, Central Highland, and Northern regions of Vietnam are vulnerable to both rapid-onset disasters and slow-onset disasters, including typhoons, floods, flash floods, landslides, and droughts [4].

The Ministry of Agriculture and Rural Development (MARD) estimates that Vietnam could be affected by 10–15 storms, floods, and landslides each year. These types of natural disasters severely affect more than 50% of the land area, and 70% of people live in areas vulnerable to climate change from the North to the Central and Central Highlands. In 2013, 14 storms and floods occurred in Vietnam, and the total damage reached USD 4.13 million. In 2017, 17 typhoons reached Vietnam, and the total damage was approximately USD 2.65 billion [7].

The statistical data of damage caused by natural disasters and the GDP growth rate also shows a relationship between natural disasters and the economy.⁷ From 2011 to 2017, when the losses caused by natural disasters increased, the economic growth rate also presented a decreasing trend. For instance, from 2011 to 2013, when the amount of economic loss rose from VND 12 trillion to VND 27 trillion, simultaneously, the GDP growth rates in 2012 and 2013 decreased from 6.24% to 5.25% and 5.42% respectively. In 2014 and 2015, while damage caused by natural disasters was low compared to the previous two years, the GDP growth rate surpassed 6% in 2014 and reached 6.68% in 2015. However, the rate of natural disaster loss suddenly occupied more than 1% of GDP in 2016 and nearly 2% in 2017, contributing to a slowdown in the economic growth rate. In 2017, Vietnam was attacked by a more severe storm season, which led to the highest loss ever in 10 years. The falling growth rate could be partly a result of these events.

Due to climate change, all key socio-ecological systems and economic activities in seven regions of Vietnam have been severely affected. According to MARD statistics, the North Central and Central coastal areas have suffered the most due to natural disasters, in terms of both the number of people killed and economic losses. In 2013 and 2016, the total number killed reached approximately 140 people and the total damage also peaked at around VND 23.5 trillion and VND 14 trillion, respectively. This part of Vietnam is also the most frequently affected by severe storms. Although the economic loss in the Northern midlands and mountainous areas is not as high as in the North Central and Central coastal areas, the number of people killed is the second highest in Vietnam (Figures 2 and 3).

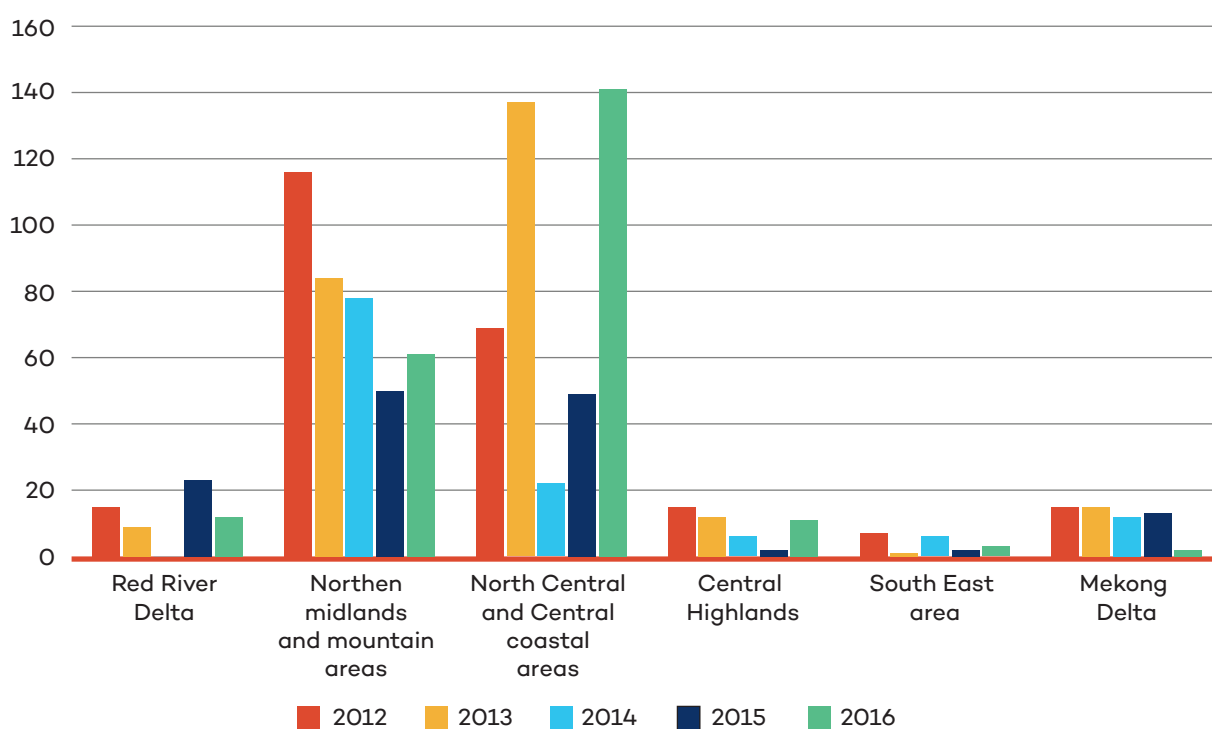


Figure 2. Number of people killed by natural disasters at a regional scale⁸

Source: Authors' analysis of raw data from the database of Vietnam Disaster Management Authority

⁷ Source: authors' analysis of raw data from the database of Vietnam Disaster Management Authority (<http://dmc.gov.vn/disaster-infomation-pt32.html?lang=en-US>).

⁸ Vietnam Disaster Management Authority database: <http://dmc.gov.vn/disaster-infomation-pt32.html?lang=en-US>

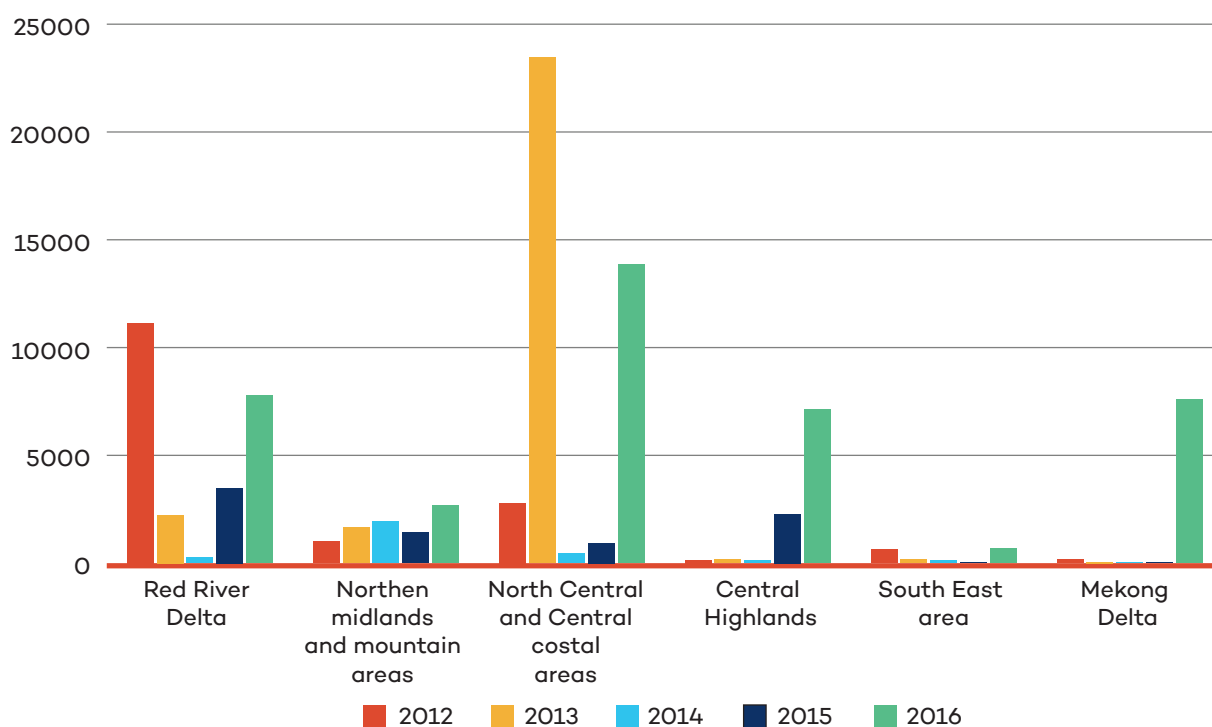


Figure 3. Damage caused by natural disasters at a regional scale⁹

Source: Authors' analysis of raw data from the database of Vietnam Disaster Management Authority

In the coming decades, Vietnam is predicted to hold its place among the countries most affected by climate change, and climate change will lead to exacerbating disasters in different geographic regions of the country. According to the MONRE's CC-SLRS, by 2050, annual mean temperatures for northern climate zones are projected to increase by 1.2–1.3°C, with the exception of the North Central Coast, where temperatures may rise by 1.4–1.5°C [4]. In contrast, climate zones south of the South Central Coast are likely to experience a smaller increase in temperature of about 0.8–1.0°C [4].

From the South Central Coast to the south, the low scenario estimates that the increase in annual mean temperatures will be 1.2–1.4°C over 1980–1999 levels. The medium scenario projects an increase of 1.9–2.0°C, while the high scenario projects an increase of 2.4–2.6°C. By 2030, all three scenarios project increases in total annual rainfall of 1.4–1.8% for northern climate zones and 0.3–0.7% for southern climate zones over 1980–1999 levels. By 2050, rainfall will have increased by 3.8–4.1% in northern climate zones but only by 0.7–1.7% in the South Central Coast and further south. Rainfall is projected to decrease during the dry season in almost every region, most markedly in the south. In the rainy season, rainfall is likely to increase in all regions. Overall, total annual rainfall is set to increase throughout the country [4].

In the Northern region of Vietnam, there would be more extreme events of flash floods, droughts, heatwaves, and cold spells. The key economic sectors predicted to be affected by climate change are agriculture, forestry, and infrastructure.

⁹ Vietnam Disaster Management Authority database: <http://dmc.gov.vn/disaster-infomation-pt32.html?lang=en-US>

3.3. Impact of Climate Change and Perception in the Private Sector

Survey results from 34 representatives of the private sector indicated that many respondents were affected by the adverse impacts of climate change, including typhoons, floods, increased temperatures, heatwaves, saline intrusion, drought, and a lack of fresh water.

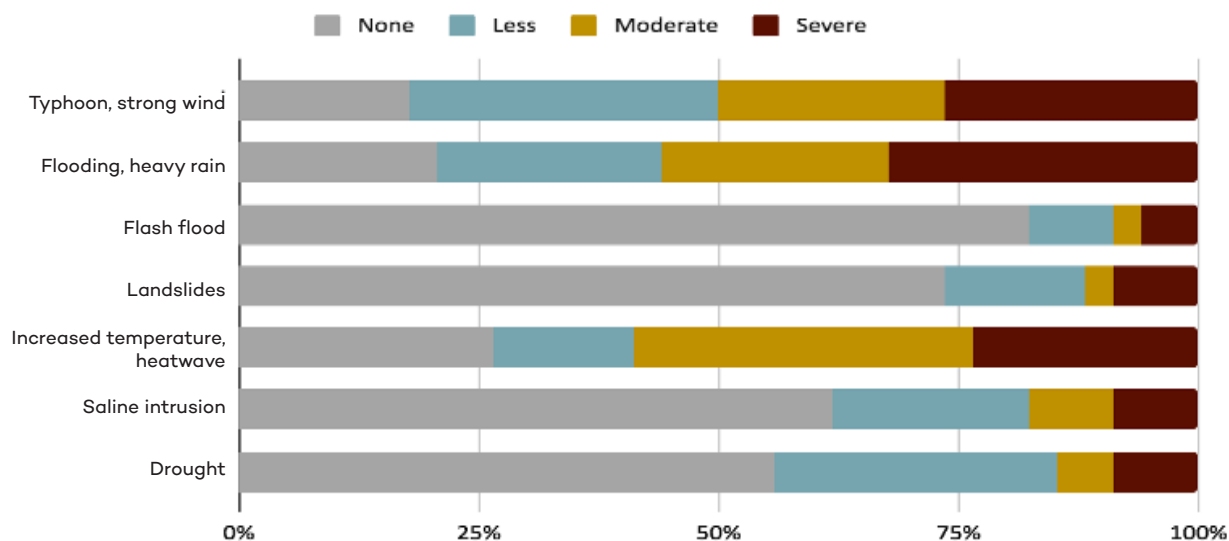


Figure 4. Impacts of natural disaster and climate change on surveyed businesses

Results from the survey found that damage by climate change and disaster occurs annually, and the total damages are up to 70–80% of the total revenue in some SMEs. In the survey, 88% of interviewees cared about policies and plans related to natural disasters and climate change, and 71% were ready to participate in the process of developing and implementing policies and plans related to natural disasters and climate change. This demonstrates that there is a willingness among the private sector to participate in climate change-related policies and programs and that the private sector understands that climate change can be an opportunity for investment. Private sector engagement in the NAP process, then, may be facilitated based on the financial opportunities therein.

The survey also indicated that climate risk information and services are very important for businesses' participation. Information can include data related to the impact of climate change and natural disasters on businesses, existing and potential risks that businesses will face from climate change and natural disasters, information on opportunities to support capital, technology, taxes, etc.

Three incentives that SMEs say they need from the government to encourage them to be more disaster resilient are:

- Tax credits, deductions, and exemptions
- Subsidies, grants, and soft loans for disaster preparedness
- Technical assistance, consultancy service, and training in business continuity preparation and disaster preparedness.

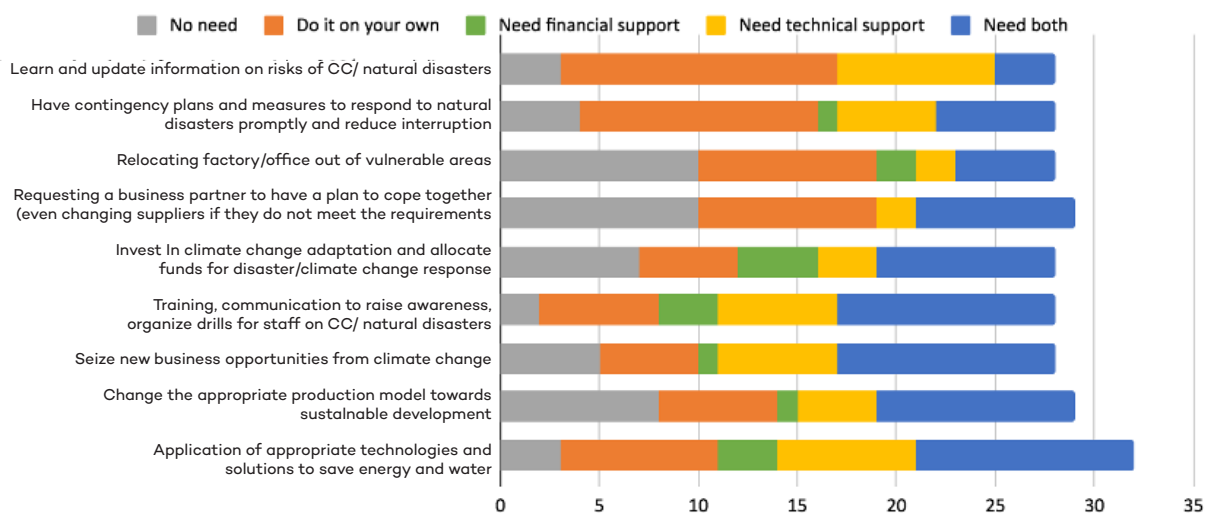


Figure 5. The needs expressed by surveyed businesses for climate change adaptation and disaster risk reduction actions

3.4. Policy and Institutional Landscape Review

Climate change adaptation in Vietnam has been identified as both a challenge and an opportunity for sustainable development. Vietnam has built a complete system of legal documents and policies on climate change adaptation beginning early in the 21st century. One important basis for developing guidelines, orientations, and strategies for climate change adaptation in Vietnam is international commitments approved by the government since the 1990s. Accordingly, national climate change adaptation policies have been established together with climate change adaptation action programs in all sectors and all levels to promote climate change adaptation activities. In parallel with the development of climate change adaptation programs and plans, Vietnam has also developed a system of legal documents to create a solid legal corridor for climate change adaptation.

The results of the review of international commitments approved by Vietnam and national climate change adaptation policies all show that the content related to the role of enterprises is very limited. Most of the policy documents before 2015 made no significant mention of the role of businesses. Responsibility for climate change adaptation activities in Vietnam is still largely assumed by the State.

Table 1. Review of content that addresses the role of the private sector in the international commitments to which Vietnam is a party

| No | Name policy/commitments | Engagement of private sector (Yes/No) |
|--------------------------------|--|--|
| INTERNATIONAL DOCUMENTS | | |
| 1. | United Nations Framework Convention on Climate Change (UNFCCC), ratified in 1994, which includes an adaptation component for loss and damage | No |
| 2. | Kyoto Protocol, ratified in 2002 | No |
| 3. | The Paris Climate Agreement, which includes an adaptation component for loss and damage and a 2016 plan for implementation | Partly, via encouragement of public–private partnership (PPP) models generally. |
| 4. | Association of Southeast Asian Nations (ASEAN) Agreement on Disaster Management and Emergency Response (AADMER) | Yes, the sixth principle of dealing with disaster risks refers to the role of the private sector and private enterprises to prepare and respond early to disaster. |
| 5. | UN General Assembly Resolution 68/211 of December 20, 2013, which calls for commitments that are specific and time-bound to support the development of partnerships at local, national, regional, and global levels, and the implementation of local and national disaster risk reduction strategies and plans | No |
| NATIONAL DOCUMENTS | | |
| 6. | Plan for Organization of Implementation of the KP under UNFCCC period 2007-2010 (Decision 47/2007/QĐ-TTg) | Yes, businesses are responsible for: (1) raising awareness of implementing the Kyoto Protocol and Clean Development Mechanism (CDM), (2) developing a CDM project, (3) related production and business research on equipment innovation, applying high-tech and environmentally friendly technologies to contribute to reducing emissions. |
| 7. | Action plan to implement the Paris Agreement on Climate Change (Decision No. 2053/QĐ-TTg dated October 28, 2016) | Yes, out of 68 proposed tasks, 10 missions (15%) are expected to be coordinated with enterprises to perform. 100% of financial resources is expected to be mobilized from enterprises and other stakeholders. |
| 8. | National Steering Committee implementing the UNFCCC and the Kyoto Protocol, and submissions to the UNFCCC Secretariat in 2003, 2010 and 2014, reporting on climate change response efforts and greenhouse gas inventories | No |

| No | Name policy/commitments | Engagement of private sector (Yes/No) |
|-----|---|--|
| 9. | Intended Nationally Determined Contribution 2015 report, updated with the latest efforts in climate change adaptation and mitigation in Vietnam | Yes, the document mentions the attraction of all economic sectors, including the private sector, but does not specify how and the roadmap. |
| 10. | Decision 321/QD-TTg amending Article 3 of Decision 43/QD-TTg on establishing a National Committee on Climate Change | No (The National Committee on Climate Change member does not have representatives of businesses or related associations.) |

At the national level, the climate change adaptation policies before 2015 did not mention the role of businesses. The integration of climate change is currently only implemented at the strategy and planning levels. Integrating climate change into production and business activities is still limited.

Table 2. Review of national climate change adaptation policies

| No. | Legal documents and policies | The role of the private sector | Inadequacies |
|--------------------|---|--|---|
| LEGISLATION | | | |
| 1. | Law on Economical and Efficient Use of Energy | Yes, the law encourages the efficient use of energy, the application of new technologies and new energy in enterprises' production and operation activities. | |
| 2. | Law on Water Resources 2012 | Yes, the law showed a great improvement compared to the 1998 Law on Water Resources in terms of the participation of the private sector. Article 41 encourages the involvement of the private sector in the development of initiatives and proposes solutions to learn techniques to use water circulation, collection and reuse of water, desalination of salt water. The private enterprises that invest in this sector would have access to concessional resources. | Although the stated policy is clear about encouraging private sector participation, the implementation is inadequate due to the limited access to information about enterprises with limited policies and cumbersome implementation processes, especially the ability to allocate funds to priority project portfolios. |

| No. | Legal documents and policies | The role of the private sector | Inadequacies |
|-----|---|---|--|
| 3. | Land Law 2013 | Yes, referring to the principles of rational exploitation of natural resources and environmental protection and climate change adaptation. It mentions that the private sector has a role equal to state-owned enterprises' in carrying out responsibilities for land resource management and climate change adaptation. | There is no specific priority mechanism for climate change adaptation projects. |
| 4. | Law on Natural Disaster Prevention and Control 2013 | Yes, the law provides legal provisions that provide a basis for aligning the role of the private sector in responding to disasters. Article 35 deals with the rights and obligations of economic organizations. In particular, the contribution for the Natural Disaster Prevention Fund (NDPF) is a mandatory responsibility. | The existing regulations consider enterprises' role only for fee collection purposes, not as partners in cooperation for disaster preparedness and response. |
| 5. | Law on Environmental Protection 2014 | No, the law includes a chapter dedicated to the content of response to climate change but does not mention the role of the private sector. | The role of enterprises is not mentioned. The law treats businesses as an entity to supervise rather than treating them as investment partners. |
| 6. | Construction Law (2014) | Yes, the law encourages domestic organizations and individuals to apply advanced construction science and technology, use new construction materials, save energy and resources, protect the environment, and respond to climate change. The law also provides incentives for enterprises to invest in construction according to planning in mountainous areas, areas with extremely difficult socioeconomic conditions, and areas affected by climate change. | |

| No. | Legal documents and policies | The role of the private sector | Inadequacies |
|-----|---|--|---|
| 7. | Investment Law (2014) | Enterprises are encouraged to invest in sectors related to climate change: <ul style="list-style-type: none"> Producing new materials, new energy, clean energy, renewable energy; making products with value-added of 30% or more, energy-saving products Applying environmentally friendly measures, saving energy in production and product quality management. | Only focusing on encouraging investment in climate change mitigation (investment in renewable energy production, afforestation) but not encouraging investment in adapting to climate change. |
| 8. | Law on Hydrometeorology (No. 9 O/2015/QH13 dated 23/11/2015) | Not mentioned | |
| 9. | Law to Support Small and Medium Enterprises of 2017 | Yes, the law provides regulations on the rights and obligations of businesses when receiving support from the State. | No mention of climate change adaptation. |
| 10. | Law on Cultivation (No. 31/2018/QH14 dated November 19, 2018) | Not mentioned | |
| 11. | Planning Law 2017 | Not mentioned | |

POLICY ON CLIMATE CHANGE RESPONSE

| | | | |
|-----|--|---|---|
| 12. | Resolution on Active in Response to Climate Change, Improvement of Natural Resource Management and Environmental Protection (Resolution 24/NQ-TW dated June 3, 2013) | Enterprises are responsible for proactively responding to climate change. Enterprises are eligible for preferential policies, incentives, and supports. | No mention of the specific role of enterprises. |
| 13. | Resolution on the Action Program for the implementation of Resolution No. 24/NQ-TW (Resolution No. 08/NQ-CP of January 23, 2014) | Yes, 1/17 proposed programs related to businesses: <i>Programs to support businesses and households in developing and using clean energy and renewable energy.</i> | No mention of adaptation to climate change. |

| No. | Legal documents and policies | The role of the private sector | Inadequacies |
|-----|---|--|--|
| 14. | Resolution on Sustainable Climate-Resilient Development of the Mekong Delta of Vietnam (Resolution No. 120/NQ-CP dated November 17, 2017) | <p>Yes, the document has many elements linking the role of enterprises in climate change adaptation:</p> <ul style="list-style-type: none"> • Promulgating mechanisms and policies to attract financial resources from the private sector • Prioritizing tasks that the private sector can perform • Encouraging participation of the private sector • Mobilizing resources, encouraging investment from the private sector in areas vulnerable to climate change in the form of PPPs. | There are no implementing guidelines on private investment yet. |
| 15. | National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020 (promulgated in 2007) | <ul style="list-style-type: none"> • Enterprises are encouraged to invest in disaster prevention and preparedness. • Enterprises are encouraged to participate in the process of formulating strategies, policy-making, proposing and implementing plans, programs and projects in natural disaster prevention and control activities. | <ul style="list-style-type: none"> • Incentive mechanisms have not been developed. • The document did not mention the role of enterprises in implementing the strategy but only considered businesses as subjects affected by or benefiting from policies. |
| 16. | The National Strategy to Respond to Climate Change was developed in 2011 and updated through two periods 2011–2015 and 2016–2020 | <ul style="list-style-type: none"> • Businesses' responsibilities are determined to implement climate change responses in a dynamic and creative way. • Enterprises are encouraged to invest in economic afforestation, financial investment for climate change response. | It is not attracting the participation of businesses. |
| 17. | National Strategy for Green Growth in 2012, including contents related to climate change mitigation and a carbon market | Yes, the strategy mentions the role of businesses in promoting green growth, focusing on low-carbon economy development. | Only mentions mitigation, not adaptation. |

| No. | Legal documents and policies | The role of the private sector | Inadequacies |
|-----|--|--|--|
| 18. | Action Plan for Natural Disaster Prevention, Fighting and Reduction 2009–2020 (issued in 2009) | Yes, one of the goals of the plan is to ensure a safe economic recovery in case of natural disasters. | The actions in the plan only focus on structural solutions in coastal areas and areas vulnerable to flooding. |
| 19. | Action Plan to Promote PPP for Disaster Risk Reduction in 2011 | Mentions the role of enterprises. | In fact, the implementation activities are few, due to the lack of capital and the lack of mechanisms to support the establishment of PPP in practice. |
| 20. | Action Plan to Respond to Climate Change 2012–2015 National action plan on green growth (2014–2020) | <ul style="list-style-type: none"> • Project: “sustainable development enterprises.” • Encourages businesses to invest in green growth, implement activities as planned. | |
| 21. | National Target Program to Respond to Climate Change 2008–2011, 2012–2015 assessed the impact of climate change and proposed policies to adapt and mitigate climate change | Not mentioned | |
| 22. | Target program to cope with climate change and green growth period 2016–2020 (Decision 1670/QD-TTg) | Yes, the program has a number of tasks to improve the capacity of the private sector, such as organizing training and communication campaigns for the private sector and commercial banks. | |
| 23. | Overall action plan to implement; Resolution 120/NQ-CP 2019 | <ul style="list-style-type: none"> • To attract enterprises to invest in modern agriculture and rural areas. • Provides market information. | |
| 24. | Project of Greenhouse Gas Emission management: Management of Carbon Credit Business Activities to the World Market (Decision 1775/QD-TTg) | Not mentioned | |

At the provincial level, most provinces have action plans to respond to climate change and integrate climate change into the planning of local socioeconomic development. The quality of government inter-sectoral coordination on disasters and climate change is unclear, and the engagement of the private sector during the planning process and implementation is still limited.

3.5. NAP Progress and the Gap in Private Sector Engagement in Vietnam

The NAP process is considered one of the top-priority tasks in Vietnam in the context of the increasing impacts of climate change and natural disasters. Just six months after Vietnam ratified the Paris Agreement, the prime minister approved an ambitious and comprehensive Plan for Implementation of the Paris Agreement in October 2016 (Decision 2053/QĐ-TTg), which included developing a NAP process as a priority. The MONRE is the focal point for NAP development, with contributions from line ministries, academia and NGOs in Vietnam.

The development of the NAP has been carried out by the MONRE under the guidance of the UNFCCC, divided into four phases:

1. Build the basic foundation: initiating NAP development; summarizing the available information; and identifying the needs, major deficiencies, and difficulties.
2. Prepare necessary factors: the main stage in planning, with the participation of many stakeholders.
3. Develop implementation strategies: providing flexible solutions to climate change adaptation.
4. Monitor and evaluate the implementation of the plan.

In the process of NAP development, the MONRE has received the active support of stakeholders, especially international and NGOs. The draft of the NAP document has been completed but is currently undergoing a screening process and review by relevant ministries and other stakeholders, including the private sector. This is a good opportunity to get input from the private sector from the onset of NAP development, thereby enabling long-term private sector engagement in the NAP process, throughout the implementation and monitoring phases. As a critical engine of economic growth, the private sector will contribute to the creation of the jobs needed to support adaptation, will develop products and services needed for societies to become more climate-resilient, and will finance and implement, directly and indirectly, many adaptation actions identified in the NAP.

With support from the NAP Global Network, the MONRE carried out research to assess the impact of climate change on businesses, assessing the capacity and needs of enterprises on climate change adaptation. The objective of this study is to propose solutions to promote the participation of enterprises from development and implementation through to monitoring the NAP's enforcement. The MONRE hosted a consultation workshop on Private Sector Engagement in NAP Development in Hanoi in November 2019. This event introduced the NAP process to the private sector, identified the impacts of climate change on the private sector, and gathered input from the private sector about the development of Vietnam's NAP process.

In the draft version of the NAP document, there are 150 projects/programs and missions proposed for the plan from 2021 to 2030. However, the financial sources required to complete the projects have not yet been identified. Please refer to the list of proposed tasks, programs, and projects of the NAP in Annex 1.

Table 3. Number of projects by sector proposed in the NAP draft

| No | Sector | Number of proposed projects with a specific name and timeline |
|-----|--|---|
| 1. | Water resources | 17 |
| 2. | Agriculture (crop) | 17 |
| 3. | Irrigation | 15 |
| 4. | Sea and islands | 13 |
| 5. | Cross-sectors | 13 |
| 6. | Environment and biodiversity | 11 |
| 7. | Forestry | 10 |
| 8. | Housing and urban development | 9 |
| 9. | Animal husbandry | 7 |
| 10. | Land use | 5 |
| 11. | Aquaculture and fishery | 5 |
| 12. | Health | 5 |
| 13. | Labour | 5 |
| 14. | Climate change and meteorological sector | 4 |
| 15. | Data, maps, and GIS | 3 |
| 16. | Mining | 3 |
| 17. | Disaster management | 3 |
| 18. | Transportation | 3 |
| 19. | Tourist | 3 |
| 20. | Trade and industry | 3 |
| | Total | 150 |

The draft NAP document also indicates that “The State shall create a legal basis, apply economic and market tools to ensure the effective implementation of policies and laws on climate change adaptation, encourage and create favorable conditions for financial institutions, domestic and foreign enterprises to invest in and support the implementation of the National Adaptation Plan.”

Shortcomings in engaging the private sector for NAP development and implementation:

The participation of the private sector in the process of implementing projects to adapt to climate change is also limited. Despite the fact that some laws, such as the Law on Land 2013, the Law on Water Resources 2012, and the Law on Disaster Prevention 2013, clearly mention the roles, responsibilities, and rights of private enterprises, the implementation process still faces many difficulties, especially in attracting investment from the private sector. The causes of these problems may be due to:

- Private enterprises, especially SMEs, do not have access to legal information. Moreover, legislative documents, including Decrees and Circulars, have not reached businesses or enterprises. SMEs may also believe there is no need or motivation to refer to related legal documents.
- Some policies and laws treat businesses as a group that needs to be managed instead of seeing them as a partner group to implement climate change adaptation initiatives and plans.
- Many climate change adaptation programs are launched, but no funding is available, and there is no mechanism to mobilize financing from businesses right from the program development stage.
- Many national adaptation programs mention the participation of businesses but lack financial mechanisms and attractiveness for investment. Businesses need to see a return on their investments in order to attract their participation.



Photo: iStock

4. Gaps and Challenges

4.1. SMEs and Climate Risks

Businesses in Vietnam can expect to face many risks in the future, including climate risks and natural disasters. These risks are due not only to the objective factors of the increasing impact of climate change and natural disasters but also to the subjective factors of the lack of risk management investments and the lack of appropriate support from the State.

More than 90% of businesses are privately owned MSMEs, and they employ more than 75% of Vietnam's workforce. Agriculture still accounts for nearly 20% of GDP and employs over 40% of the population, which includes most of the rural population of Vietnam. The location of major agricultural production areas in Vietnam is often located in low-lying coastal areas that are prone to storms and sea-level rise. The highest poverty rate is also mainly in the agricultural sector. In addition to agriculture, industries that use a large amount of labour or depend on weather conditions such as tourism and energy are all likely to be affected by climate risks and natural disasters.

However, according to a report by The Asia Foundation, SMEs are often not prepared for the potential risks, and the resilience of SMEs is often limited, depending on external support, particularly loans [21]. Due to limited resources and targeting of economic development, SMEs in Vietnam focus on short-term profits with little emphasis on risk management investments in the long term. The Asia Foundation's survey results also show that up to 40% of SMEs do not have written or long-term disaster preparedness plans to adapt to climate change. There are still many businesses that do not intend to buy insurance or participate in local activities related to climate change and natural disaster responses, such as disaster preparedness, planning, prevention, or post-disaster relief. A representative of the Central Business Association said that SMEs are just trying to "survive," only hoping to maintain their businesses, not to mention other issues [21].

Regarding the State's support for businesses in coping with climate change and natural disasters, the Government of Vietnam has made remarkable efforts in recent years. The government has issued many policies to support businesses damaged by natural disasters, including tax exemption and reduction policies, preferential loan policies, and credit support policies. However, these supporting policies still face many limitations in the actual implementation process, leading to the situation that many businesses suffer losses due to natural disasters but do not receive timely and appropriate support. In addition, the government has not yet issued policies for supporting businesses affected by climate change and extreme weather events or policies to encourage enterprises to invest in adapting to and mitigating climate change.

Policies for tax exemptions and reductions for businesses damaged by natural disasters are clearly specified in the legal documents for each type of tax (such as enterprise income tax, special consumption tax, export tax, import tax, agricultural land-use tax, etc.). However, in order to access tax support, businesses must complete many procedures, follow many different processes, and be approved through many legal steps. Therefore, very few businesses apply for tax exemptions or reduction, even when they suffer great losses from natural disasters. Survey results show that 100% of interviewed enterprises have never received support related to tax exemptions or reduction when suffering from natural disasters.

The new Law on the Support of SMEs and review of Decree 56/2009/NĐ-CP are now focusing on supporting new policies for tax, promotion of innovation in SMEs, access to land and industrial zones, access to capital, access to global value chains, and the conversion of household businesses into the formal business sector. However, the law does not specifically address emergency relief for SMEs, especially for SMEs currently operating in areas vulnerable to climate change. SMEs have not been prioritized in disaster relief funds received, and the same is true of agriculture cooperatives. The Asia Foundation report also indicated that SMEs are often not considered in local climate resilience building programs [21]. Meanwhile, SMEs themselves are often vulnerable to climate change and natural disasters. In addition, according to the Chamber of Commerce and Industry of Vietnam, most SMEs do not have access to information on climate change and disaster risk [22].

Furthermore, according to the provisions of Decision No. 50/2010/QĐ-TTg on the Mechanism of Handling Risky Debts at Vietnam Bank for Social Policies, the organizations and individuals who are borrowing from the bank will be considered for debt settlement through debt rescheduling, debt freezing, and debt write-off if their capital and assets are directly impacted by natural disasters. According to a meeting with the representatives of the tourist sector in Hue city, registered businesses are allowed to write off losses against income on their taxes for up to five years. However, this tax rule does not apply to unregistered businesses. Thus, regardless of the level of disaster losses, unregistered businesses do not receive tax benefits that registered businesses receive. This creates a challenge for government policy to find a balance between the push to bring unregistered businesses into the formal economy and the reality that a large number of SMEs are unregistered and will fail in large numbers as a result of climate change impacts for which they are unprepared and from which they cannot recover.

In addition to tax and credit support policies, the government has also issued external financial policies in response to climate change to attract funds and supports from foreign partners, but only for the public sector. Business and individual losses are not funded and mainly covered by themselves, except for some very extreme conditions.



Photo: iStock

4.2. Natural Disaster Prevention Fund and Private Sector Participation

As mentioned above, the funds for disaster response in Vietnam are mainly taken from the State budget and foreign aid. The mobilization of other components involved in disaster prevention is very limited. Yet the requested funds for disaster response are proportional to the increasing impacts of natural disasters, exacerbating the financial competition among sectors and regions to respond to disasters. This leads to competition between resources for climate change adaptation and resources for socioeconomic development.

Currently, Vietnam has three non-state budgets with activities related to natural disaster preparedness, response, and recovery, including the Natural Disaster Prevention Fund (NDPF), the Environment Protection Fund (EPF), and the Road Maintenance Fund (RMF). The NDPF is stipulated in the Law on Natural Disaster Prevention and Control 2013. Accordingly, the NDPF is used for disaster prevention, response, relief, and recovery. Contribution to the NDPF is mandatory for all organizations and individuals nationwide. For businesses, the compulsory contribution is from VND 0.5 million–1 million per year, depending on the size of the enterprise. The EPF provides financial support for environmental protection activities, coping with climate change, and lending capital with preferential interest rates for environmental protection projects. The RMF is divided into two levels: (i) the central fund is used for the maintenance and management of the national highway system and (ii) local funds are used for the maintenance and management of the local road system, as the localities are responsible for maintenance and management as decentralized by the provincial People's Council.

The NDPF is managed by the provincial People's Committee, which coordinates with relevant agencies to assess the damage and support the needs of the locals. Whenever there is a disaster, the local will initiate funding sources in response and need not wait for support from the central. (In cases of huge damage, it is still necessary to request support from the central.) The NDPF has great potential for supporting the continuity of Vietnam's economy to mitigate and respond to disasters.

The survey results show that many of the interviewed businesses agreed with the establishment of the NDPF and prioritized support for vulnerable groups due to climate change. They recognized that the poor are particularly vulnerable to weather extremes. This sentiment was echoed by businesses in Quang Nam and Khanh Hoa in a study by the Chamber of Commerce and Industry of Vietnam and The Asia Foundation in 2017. The interviewed businesses expressed disappointment that there was neither a visit from a government official nor a program of assistance available to them when they suffered a serious loss. A few business representatives commented that they only hear from the government when it needs support during a disaster [19]. Thus, transparency will need to be prioritized for the meaningful engagement of the private sector in the NAP.

4.3. Climate Change and Disaster Insurance

In the context of increasing impacts, insurance is an appropriate choice for businesses. A robust system of insurance also is considered an essential element for private sector engagement in climate change adaptation. If evenly distributed across the country, an insurance system would provide the resources needed when and where natural disasters occur. Thus, climate change and natural disaster insurance has the potential to promote proactive adaptation and prevention and helps minimize risks for businesses. Simultaneously, insurance also leverages proactive adaptation and mitigation of risks by offering better rates to those who are less of a risk.

The Vietnamese government has actively built and developed the disaster insurance system. In 2007, approval was granted to Vietnam's National Strategy for Natural Disaster Prevention, Response and Mitigation 2020 for a program to develop risk financing solutions, such as natural disaster insurance. The Government of Vietnam has also reinforced its intention to develop disaster-index-based insurance programs for the agricultural and property insurance sectors. In 2011, the government issued a pilot program for agricultural insurance (2011–2013)¹⁰ under Decision No. 315/QĐ-TTg in order to reduce losses to the State budget through partially shifting the obligation to support insurance enterprises, including natural disaster risks [23]. However, this program was implemented on a limited scale in 20 provinces and cities (including 65 districts and 748 communes). The lessons of this program should be studied, improved upon, and applied to future insurance in support of business in Vietnam more broadly, particularly for SMEs. A key concern would be mandating the participation/payment by SMEs, both registered and household, on a national scale—possibly through the Fund for Disaster Prevention and Control—and government regulations that are not burdensome to ensure effective management.

Recently, in 2018, the government issued Decree 58/2018/ND-CP, providing regulations on agricultural insurance. It specifies the natural disaster risks covered by agricultural insurance, including storms, tropical depressions, cyclones, lightning, heavy rains, floods, flash floods, landslides due to floods, land subsidence due to floods or flows, rising water, saline intrusion, hot weather, drought, cold spells, hail, hoarfrost, earthquakes, and tsunamis.

¹⁰ In 2011, the Vietnamese government piloted an agricultural insurance program across 20 provinces and cities for paddy rice, livestock, and aquaculture. According to Ramm & Ankolekar (2015), the pilot involved a two-year trial of area-yield index-based insurance delivered through two joint-stock and part state-owned commercial insurers, Bao Viet, and Bao Minh Insurance Corporations, with reinsurance provided by VINARE [23]. For rice, compensation was applied at a commune level and below (village); paid on losses resulting from below-average yield; calculated based on the previous three consecutive seasons' output; and triggered when actual season output drops under 90% of sum assured. Livestock coverage was provided on an indemnity basis, i.e. actual loss. Premiums were subsidized through four levels of entitlement: 100% premium subsidy to poor farming households and individuals, 80% to sub-poor, 60% to normal farmers, and 20% to farming organizations. A review of the program by the Ministry of Finance revealed a few shortcomings and difficulties that materially affected the program's success:

- The government's lack of experience in dealing with the complexities of agricultural insurance.
- The extent of disasters, exacerbated by the large geographical coverage of the scheme, precluded an ability to meet the contextual requirements specific to differing areas.
- According to compiled data, the scheme failed to meet its costs, running up significant losses.
- Despite recruitment and training efforts, insurance company resources were inadequate compared to what was required to provide services, e.g., monitoring and evaluation of claims and products.
- The frequency, magnitude, and randomness of natural disasters that often inflicted large losses (particularly for fisheries in late December 2012) beyond the financial capacity of commercial insurers.
- Difficulties with arranging reinsurance via international reinsurers.
- The reluctance of households and agricultural organizations to participate in the scheme beyond an "explore as it goes" approach.

Despite efforts by the government, climate change or natural disaster insurance is relatively new in Vietnam, and SMEs prefer not to invest in it. Disaster risks are being incorporated into property insurance (fire and special perils insurance, industrial all risks insurance, property all risks insurance, etc.), human insurance or agricultural insurance (crops and livestock). However, such efforts have been geared to larger insurers and larger businesses, particularly foreign-owned businesses, thus further undercutting the development of SMEs in Vietnam. In fact, there is little indication of any insurance products designed specifically with the SME market in mind.

Survey results show that up to 50% of interviewed businesses participated in natural disaster insurance; however, the rate of businesses that applied reinsurance is limited. The main reasons for not buying or not re-buying insurance are due to a lack of information (30%), limited financial capacity (24%), and no mandatory rule (17%). Even among larger surveyed businesses, only very few businesses invest in climate change or natural disaster insurance.

Another disadvantage that makes disaster insurance ineffective is that insurance compensation faces many difficulties. According to the regulations, businesses or individuals who buy insurance are only supported when natural disasters are officially declared or certified by competent state agencies. However, the declaration of an emergency depends on the level of the disaster. Specifically, for level 1 and 2 disasters that occur, local authorities (provinces, districts, and communes) will proactively announce; for level 3 disasters, a state of emergency will be confirmed by the Central Steering Committee on Disaster Prevention and Control; and for disasters beyond level 4, the prime minister will request the president to declare the emergency.¹¹ In fact, the roles of who officially declares a state of emergency are often overlapping across levels of government. Meanwhile, the official declaration of an “emergency” at the local level is often deficient due to limited capacity.

Analysis of survey results for commercial insurers shows that some problems related to the current disaster insurance system include weak regulatory systems, including tax incentives; institutional governance; unfair competition; fraud; higher start-up and transaction costs; poor insurance market regulations (which, in the absence of local regulation, are dictated by international reinsurance); a lack of insurance distribution channels; and ineffective inter-sectoral coordination and planning to manage risks. Insurers also have expressed concerns about market data from the government and private sector to help set appropriate rates and manage risk. Data tends to be held in a decentralized manner at the departmental and divisional levels of different ministries, and it is not regularly collected, collated, or aggregated through a consolidated system. All information, including on investments and spending on natural disaster prevention and control across line ministries, should be centralized into one database at MARD and updated regularly.

¹¹ Clause 1, Article 11 of Decree 66/2014/ND-CP guides the implementation of a number of articles under the Law on Natural Disaster Prevention and Control.

Specific barriers noted by SMEs include lack of awareness until they experience loss first-hand; lack information about climate risk; lack of perception of disaster risk; value of mitigation and impact on potential income/returns; traditional insurance distributed via agents/brokers is too expensive; and challenges borrowing money/access to financing to fund mitigation efforts.

Of course, there is no “one-size-fits-all” solution, and insurance alone does not solve the challenges. According to the *Compendium of Disaster Risk Transfer Initiatives in the Developing World* by the Climate Wise Insurance Initiative, a range of functions is required, 68% of which are funded through government programs or initiatives [21].¹²

PPPs are essential for sharing risk and developing capacities for effective insurance schemes. In fact, Vietnam is at its debt ceiling; any future improvements will require investments to come from alternative sources, including the private sector. This is only achievable through improved public–private sector coordination.

Did you buy disaster insurance?

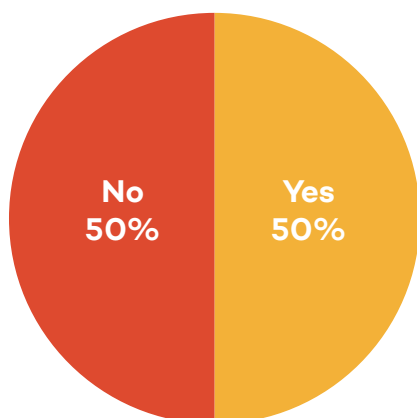


Figure 6. Percentage of surveyed SMEs that buy disaster insurance

¹² For example:

- Funding of technical assistance projects
- Financing of scheme feasibility studies
- Financing the development of tools such as risk and actuarial models
- Financing the development of new insurance products and the design and structuring of insurance facilities
- Funding the provision of education and capacity building
- Financing the development of infrastructure such as weather station networks
- Provision of start-up capital, provision of capital support
- Financing program start-up costs
- Financing operational costs (e.g., insurer’s administrative and operating expenses, loss adjustment expenses, etc.)
- Subsidizing insurance premiums
- Funding reinsurance.

5. Strategies for Engaging the Private Sector in Climate Change Adaptation Development and Implementation

Based on the result of the survey, the two consultation workshops in Hanoi, and feedback from stakeholders, this report includes recommendations to the Government of Vietnam on appropriate next steps for engaging the private sector in NAP development and implementation.

5.1. Suggestions From the Private Sector: Results from the surveys

In order to support private sector engagement in the NAP process, representatives from the private sector recommended that the government make efforts to:

- Support the private sector to develop tools for damage assessment after a natural disaster or climate change extreme events.
- Assist enterprises to assess climate change and natural disaster risks, develop and institutionalize assessment processes (identify agencies responsible for coordinating with enterprises to conduct periodic assessments).
- Adjust post-disaster support policies for businesses (financial, technical, tax support, etc.).
- Develop a tax support mechanism (tax credit) that is flexible and suitable for businesses (offering tax deductions according to the extent of damage or affected time period, etc.).
- Offer disaster and climate change insurance packages suitable to each type/size of enterprise (coordinate with the Vietnam National Insurance Corporation's reinsurance Joint Stock Company).
- Provide training courses on climate change and disaster risk management for business associations.
- Develop a mechanism to encourage enterprises operating in the field of environmental protection and clean/green production.

The private sector has also proposed solutions on how to engage and mobilize investments from the private sector for climate change adaptation:

- Propagate and raise awareness about the “social responsibility” of enterprises.
- Raise awareness about the impact of climate change and natural disasters on businesses (through associations, social organizations, etc.).
- Promote transparency about the benefits that enterprises receive from investing in climate change responses.
- Offer flexible tax incentives (for businesses with high social responsibility in climate change and disaster management).
- Improve information and communication systems (e.g., provide climate risk information to the private sector, create forums for businesses and the private sector to contribute ideas and integrate their business plan with the government’s strategy).
- Integrate climate change adaptation into the corporate cultural code of conduct.

5.2. Consultation With the Private Sector During NAP Revision Progress

A private sector engagement consultation has been conducted with the host of the NAP focal point (MONRE) and with support from the NAP Global Network. A list of concrete projects with investment from the private sector in the agriculture, aquaculture, and tourist sectors for implementing the NAP from 2021 to 2030 will be proposed in the final draft of this report and be considered for inclusion in the final NAP document.

It is suggested that efforts to engage the private sector in the adaptation efforts of individual sectors should continue in 2020 and that efforts should be made to receive inputs and commitments from the private sector for NAP implementation. Table 4 shows an analysis of possible entry points to engage the private sector in priority sectors, based on the proposed projects in the draft version of the NAP.



Photo: CIAT/NeilPalmer

Table 4. List of proposed projects and the role and opportunity of enterprises in the implementation of projects

| No. | Sector | Number of proposed projects with a specific name and timeline | Opportunities for the private sector engagement | Entry points to engage private sector |
|-----|-------------------------------|---|---|---|
| 1. | Water resources | 17 | Yes | <ul style="list-style-type: none"> Public–private cooperation in monitoring systems, sustainable water exploitation, and biodiversity conservation. |
| 2. | Agriculture (crop) | 17 | Yes | <ul style="list-style-type: none"> PPP mechanism in investment and rice value chain. Cooperate with farmers in creating agricultural value chains. Invest in private sector research. Invest in agricultural insurance model. |
| 3. | Irrigation | 15 | Yes | <ul style="list-style-type: none"> PPP mechanism |
| 4. | Sea and islands | 13 | Yes | <ul style="list-style-type: none"> Exploit wave, sea breeze, mudflat resources in energy development and the construction of commercial service infrastructure, wharves, and houses in combination with protecting coastline and islands. |
| 5. | Cross-sectors | 13 | Not sure | |
| 6. | Environment and biodiversity | 11 | Yes | <ul style="list-style-type: none"> Invest in ecotourism and environmental protection. |
| 7. | Forestry | 10 | Yes | <ul style="list-style-type: none"> Pay for forest planting and keeping services. |
| 8. | Housing and urban development | 9 | Yes | <ul style="list-style-type: none"> Exempt tax and rent cheap land in areas where agriculture, forestry, and fishery cannot be exploited to build houses and urban centres. |
| 9. | Animal husbandry | 7 | Yes | <ul style="list-style-type: none"> Invest in research and facilities investment. |

| No. | Sector | Number of proposed projects with a specific name and timeline | Opportunities for the private sector engagement | Entry points to engage private sector |
|-----|--|---|---|--|
| 10. | Land use | 5 | Not sure | <ul style="list-style-type: none"> Multi-purpose Build, Operate, and Transfer (BOT) transport, commercial, and service works taking into account climate change adaptation factors. |
| 11. | Aquaculture and fishery | 5 | Yes | <ul style="list-style-type: none"> Collaborate in seafood value chains. Insurance. |
| 12. | Health | 5 | Yes | <ul style="list-style-type: none"> Public health service with investment from the private sector. |
| 13. | Labour | 5 | Yes | <ul style="list-style-type: none"> Apply labour rights criteria with health assurance criteria in the context of climate change. |
| 14. | Climate change and meteorological sector | 4 | Yes | <ul style="list-style-type: none"> Apply a PPP model in climate service investment. |
| 15. | Data, maps, and GIS | 3 | No | |
| 16. | Mining | 3 | Not sure | |
| 17. | Disaster management | 3 | Yes | <ul style="list-style-type: none"> Climate service and early warning. |
| 18. | Transportation | 3 | Yes | <ul style="list-style-type: none"> Apply PPP investment in the construction of multipurpose coastal roads and bridges (erosion control, traffic, service infrastructure). |
| 19. | Tourism | 3 | Yes | <ul style="list-style-type: none"> Eco-tourism. |
| 20. | Trade and industry | 3 | Yes | <ul style="list-style-type: none"> Invest in value chains that meet the terms of climate change adaptation under the EU-Vietnam Free Trade Agreement Decree. |
| | Total | 150 | | |

A number of solutions enhance private sector participation in some key areas.

Proposed solutions for aquaculture and agriculture:

- Apply a PPP and a public–private cooperative mechanism to the model of climate change adaptation for rice and other agricultural products; this would need a clear policy for PPPs and public–private cooperatives in the next 5 years.
- Enterprises can contribute to developing technical standards, training for farmers, monitoring, setting up value chains and logistics.
- Local authorities or specialized departments at provincial, district, and commune levels can support policy advice and guide the implementation of commitments and contracts between farmers and enterprises.
- Coordinate implementation between local government enterprises (e.g., local governments are responsible for the development of synchronous infrastructure, including irrigation systems, roads, dikes, and dams; and businesses contribute to development, weather forecasting services, climate services, and environmental monitoring services).
- Establish a national focal point for the Sustainable Rice Platform, creating a platform for Vietnamese businesses to share experiences and to meet standards to adapt to and mitigate climate change.
- Develop detailed climate information services (provided by the government or the private sector); services should be designed to suit all types of businesses.
- Recommendations for aquaculture (especially shrimp farming): (1) apply solar energy systems—specific policies and guidelines are needed for the solar system installation in shrimp farming areas; (2) the shrimp farming system needs to follow global standards (Asian Seafood Improvement Collaborative, Aquaculture Stewardship Council); and (3) establish a cluster or farmer group (cooperative) to produce the same product. This can enhance the capacity of each individual, helping people to better adapt to climate change.
- Promote agricultural and climate insurance.
- Encourage the participation of banks in the process of developing and implementing the NAP.

Proposed solutions for the tourism industry:

- Provide necessary information on the impacts of climate change and natural disasters. For businesses investing in construction in tourism, the information and impact scenarios will help them to develop a long-term vision for the design of buildings suitable to the rapid climate change.
- Develop a minimum set of standards necessary to restore and rebuild tourism when affected by natural disasters. This set of standards will help businesses in the tourism industry to properly implement preventive measures, help minimize impacts, and accelerate the recovery process. The development of a set of standards requires the active participation of tourism associations and other stakeholders. The development and issuance of standards should be prioritized for implementation and included in the NAP for implementation within the next 5 years.
- Develop and promote disaster insurance in the tourism sector.

General solutions to optimize the private sector's participation in NAP development and implementation:

- The most important principle for promoting the private sector's participation in NAP development and implementation is mutual benefit. Businesses are always looking for benefits and to enhance their brands. Therefore, to encourage businesses' participation in climate change adaptation, it is important to develop an appropriate roadmap and to make the business case for why the private sector should be engaged, in parallel with ensuring the implementation of the government's commitments.
- Raising awareness can help enterprises understand that participating in developing and implementing the NAP is both a responsibility and a right of enterprises (receiving tax incentives, creating new business opportunities, and approaching additional external funding sources, etc.).
- There is a mechanism to promote the participation of banks and insurance companies in the next NAP development stage.



Photo: iStock

5.3. Proposed Mechanisms to Attract Investment From the Private Sector in NAP Implementation

Table 5 contains suggestions from key representatives of the private sector, as discussed at the consultation workshops, as well as experiences from ongoing projects.

Table 5. Key suggestions from the private sector based on current projects

| No. | Thematic areas | Potential tasks, programs, and projects in the NAP that may attract private sector investment | Proposed mechanisms to attract investment from the private sector in NAP implementation |
|-----|---------------------------|--|---|
| 1. | Resources and environment | <ul style="list-style-type: none"> • Develop early monitoring systems for climate change and sea-level rise as well as monitoring and prediction systems for saline intrusion. • Modernize the observation system and technology of hydro-meteorological forecasting and disaster early warning systems. | <ul style="list-style-type: none"> • Incorporate climate change content into the draft Public-Private Partnership Investment Law to create a legal corridor for private investors in the climate change field. The State plays a role in data management, and the private sector plays a role in fee-for-service infrastructure investment to create profit incentives to attract investment. • Establish a National Climate Fund to gather internal and external resources related to climate change to form a single centralized fund. The fund will then be redistributed through various financial mechanisms to target “green and resilience” projects . • Promote and deploy green bonds to create financial resources for solutions on environmental protection, climate change mitigation, and adaptation. • Incorporate the contents of mechanisms and policies to attract private investment into the field of climate change adaptation and environment protection into the amended Law on Environmental Protection. • Incorporate the contents of climate risk assessment into the environmental impact assessment process in the amended Law on Environmental Protection. • Enhance communication activities for businesses on the impacts of climate change and benefits of climate change adaptation investment. |

| No. | Thematic areas | Potential tasks, programs, and projects in the NAP that may attract private sector investment | Proposed mechanisms to attract investment from the private sector in NAP implementation |
|-----|-----------------------------------|---|--|
| 2. | Agriculture and rural development | <ul style="list-style-type: none"> • Develop integrated models of farming and husbandry, cultivation and fisheries, suburban agriculture, agroforestry, cultivation and ecotourism. • Diversify coastal livelihoods from forests. • Replicate suitable aquaculture models, adapting to climate change; improve disease warning capacity in service of safe aquaculture. • Step up natural disaster prevention; consolidate and build key and urgent natural disaster prevention works; develop systems of protective forests and coastal zones with priority given to afforestation covering the land areas of sea dikes and river dikes; plant bamboo breakwaters for dike lines to prevent floods and storms. | <ul style="list-style-type: none"> • Promote the model of sustainable value chains, adaptation to climate change with a focus on businesses playing an important role in sharing climate risks with farmers. • Applying the Business Climate Index developed by United Nations Development Programme and the Ministry of Planning and Investment as a tool to attract private investment in climate change adaptation. • Promote agricultural insurance with the State bank playing a guarantee role. |
| 3. | Community health | <ul style="list-style-type: none"> • Develop the healthcare network and infrastructure to ensure environmental sanitation; implement technological solutions and equipment for the prevention and treatment of diseases related to climate change; strengthen the monitoring and early warning systems for climate change impacts on health. • Promote scientific research on the impact of climate change on health and adaptation measures in the health sector. • Develop and replicate disease management and surveillance models; model environmental sanitation and clean water adaptation to climate change. | <ul style="list-style-type: none"> • Incorporate policies to build private health facilities using criteria for climate change adaptation and green hospitals. • Encourage private universities to invest in scientific research on health and climate change. |

| No. | Thematic areas | Potential tasks, programs, and projects in the NAP that may attract private sector investment | Proposed mechanisms to attract investment from the private sector in NAP implementation |
|-----|-------------------------------|--|--|
| 4. | Labour | <ul style="list-style-type: none"> • Research and improve policies to encourage green and sustainable job creation; integrate climate change issues in policies to create green jobs and support job change; develop sustainable livelihoods for people. • Promote communication on “Gender and Climate Change,” “Gender Equality with Climate Change”; strengthen soft skills training for female workers. | <ul style="list-style-type: none"> • Promote the social enterprise model that applies the criteria of workers adapting to climate change. |
| 5. | Housing and urban development | <ul style="list-style-type: none"> • Step up flood control for big cities; build urban infrastructure resilient to climate change; apply new technologies; use sustainable materials with high resistance and technologies to adapt to climate change. • Infrastructure development and planning of residential areas; relocation and rearrangement of residential areas in areas frequently affected by natural disasters. • Continue to implement programs on development and construction of safe houses with floods and storms for the North Central and South Central regions; consolidate and build new urban water supply and drainage works; make the Mekong Delta and Southeast regions an immediate priority. | <ul style="list-style-type: none"> • Study and propose private investment in strengthening and constructing new dikes to combine multi-function infrastructure works, such as BOT traffic works combined with flood-prevention dikes; business establishments; a public services process for avoiding floods, storms, and protecting dikes; commercial infrastructure works in combination with taking advantage of natural land banks along rivers and coastal areas. • Create a legal corridor for private enterprises to build reservoirs and trade water sources with preferential capital from the State budget and green climate fund. |
| 6. | Transportation | <ul style="list-style-type: none"> • Upgrade and renovate transportation infrastructure and transportation works in areas often threatened by floods and sea-level rise, especially in the Mekong Delta region. • Improve resilience to landslides for transportation systems in the northern mountainous region and the Central Highlands, especially biological and environmentally friendly solutions. | <ul style="list-style-type: none"> • Application of BOT policy for transport projects combined with storm and flood-prevention projects. |

| No. | Thematic areas | Potential tasks, programs, and projects in the NAP that may attract private sector investment | Proposed mechanisms to attract investment from the private sector in NAP implementation |
|-----|---------------------------|---|--|
| 7. | Tourism and service | <ul style="list-style-type: none"> • Preserve and develop natural tourism and ecotourism resources; upgrade and improve infrastructure, material, and technical foundations for tourism, convalescence, and travel activities. • Raise awareness and capacity of staff working on tourism and hospitality to understand and implement climate change adaptation measures. • Develop community ecological models; ecosystem-based adaptation models, community-based adaptation; models for the exploitation of coastal and island ecotourism, models for adapting to coastal climate change in economic zones. | <ul style="list-style-type: none"> • There is an incentive policy to reduce land tax and land lease for tourism and service projects in areas affected by climate change (such as mangrove areas, arid areas). |
| 8. | Industrial and commercial | <ul style="list-style-type: none"> • Plan coastal industrial parks and islands based on climate change scenarios and sea-level rise. • Upgrade and renovate power plants, power transmission stations, transformer stations, fuel pipeline systems, mines, coal yards, and other energy facilities in coastal areas. | <ul style="list-style-type: none"> • Issue green bonds and green credit for climate change adaptation in industrial and commercial activities (applying Business Climate Index tool). • Encourage the negotiation of future free trade agreements that incorporate climate change. |



Photo: CIAT/NeilPalmer

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Annex 1. List of Tasks for Implementation of the National Adaptation Plan (NAP) in the period 2021–2030, Vision to 2050

SOURCE: DRAFT VERSION OF NAP VIETNAM

A. Strengthening State Management and Resources

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|----------|---|---|---|--|---|-------------------------------|
| | | | | | By 2025 | By 2030 |
| I | Improvement of mechanisms and policies | | | | | |
| 1. | Improve the legal system to promote climate change adaptation activities. | Basis for developing the Law on Climate Change. | <p>Preparation for the development of the Law on Climate Change:</p> <ul style="list-style-type: none"> Review relevant legal documents and identify legal gaps in the implementation of long-term development goals for low greenhouse gas emissions and climate sustainability. Identify the objectives of the law and its relation to the sustainable development goals; responsibilities of State management agencies, enterprises, socio-political organizations, social organizations, and the people; approaches for developing legal documents on climate change. Develop a framework for the law; ensure uniformity and compliance with Vietnamese laws, the national legal framework on climate change, and international commitments. | MONRE, other line ministries, sectors and localities | 2023: The framework of the Law on Climate Change is completed; submission for framework approval. | Implementation of law making. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|---|--|--|---|---|---|
| | | | | | By 2025 | By 2030 |
| 2. | Complete socioeconomic development planning, taking into account climate change aspect. | Impacts of climate change are taken into account in socioeconomic development and sectoral planning. | Update and develop new socioeconomic development plans and sectoral plans based on climate change scenarios with a focus on key sectors and regions. | Line ministries, sectors, and localities | 2021: The updated plans are approved and implemented. 2025: 50% of the planning is developed with consideration of climate change. | 100% of the planning is developed with the consideration of climate change. |
| 3. | Integrate climate change. | Climate change is integrated into strategies and planning. | Develop and issue guidance on assessing the results of integrating the climate change response in the strategic environmental assessment of strategies and planning. | MONRE, other line ministries, sectors, and localities | 2023: Guidance is issued. | |
| | | | Develop and issue guidance for integrating climate change adaptation and disaster risk reduction. | MONRE, other line ministries, sectors, and localities | 2023: Guidance is issued. | |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----------|---|--|--|---|---|---|
| | | | | | By 2025 | By 2030 |
| II | Monitoring and evaluation of climate change adaptation activities | | | | | |
| 1. | Strengthen the monitoring and evaluation of effectiveness of adaptation activities. | A set of criteria for identifying projects, tasks, and evaluating the effectiveness of climate change adaptation activities. | Develop and issue the criteria set for assessing climate risks. | MONRE, other line ministries, sectors, and localities | 2022: The criteria set is issued. | |
| | | | Develop criteria to identify climate change adaptation projects and tasks. | MONRE, other line ministries, sectors, and localities | 2022: The criteria set is issued. | |
| | | | Develop and issue a set of criteria to assess the effectiveness of climate change adaptation activities. | MONRE, other line ministries, sectors, and localities | 2022: The criteria set is issued. | |
| | | Monitoring and evaluation system for climate change adaptation activities. | Set up a monitoring and evaluation system for climate change adaptation activities. | MONRE, other line ministries, sectors, and localities | 2021: The plan is approved. 2022–2025: The system is developed and operated. | 2025–2030: Continued operation of the system. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|------------|---|---|---|---|--|------------------------------------|
| | | | | | By 2025 | By 2030 |
| III | Mobilization of resources | | | | | |
| 1. | Mobilize financial resources for climate change adaptation. | Build a legal basis; identify economic and market tools to encourage and create favourable conditions for domestic and foreign financial institutions, enterprises, and individuals to invest in and support the implementation of the NAP. | Mobilize and allocate resources for community-based climate change adaptation and disaster risk management. | MONRE, other line ministries, sectors, and localities | 2021: The plan is approved. 2022–2025: Implementation. | 2030: Continued implementation. |
| | | | Assist local agencies to build capacity profiles to become accredited entities of the Green Climate Fund, Adaptation Fund, and other funds. | MONRE, other line ministries, sectors, and localities | 2021: The potential organizations are identified. 2022–2025: Support the development of capacity profile. | Develop projects. |
| | | | Develop financial mechanisms and policies to encourage, support, and attract investment in climate change adaptation activities. | MONRE, other line ministries, sectors, and localities | 2021: Financial mechanism and policies are issued. 2022–025: Implementation | 2030: Continued implementation. |
| | | | Develop mechanisms and policies to strengthen the insurance and risk-sharing system of climatic and natural disasters. | Ministry of Investment and Planning, MOF | 2022: Mechanisms and policies are issued. | |
| | Take advantage of opportunities brought by climate change. | | Promote adaptation actions that have co-benefits on disaster prevention and mitigation of climate change risks that are economically, socially, and environmentally effective at the same time. | MONRE, other line ministries, sectors, and localities | Implementation of pilot adaptation actions that have co-benefits. | Expansion, review, and assessment. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----------|--|--|---|---|--|---|
| | | | | | By 2025 | By 2030 |
| IV | Awareness raising | | | | | |
| 1. | Improve awareness and adaptation capacity. | Raise awareness; enhance knowledge and the response of local authorities, social organizations, and communities on climate change and natural disasters. | Awareness raising and capacity building on climate change adaptation and disaster risk reduction. | MONRE, other line ministries, sectors, and localities | 2021: The project is approved. 2025: The project is finalized, summarized, and evaluated. | |
| | | | Develop educational programs at all levels on climate change and disaster risk. | | | MONRE, other line ministries, sectors, and localities |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|----------|---|--|---|---|--|--|
| | | | | | By 2025 | By 2030 |
| V | Scientific research and technology development | | | | | |
| 1. | Develop science and technology. | Develop the national database on climate change. | Review and update the national database on climate change to serve territorial and spatial planning, economic structural transformation, and the master planning of sustainable development to adapt to climate change. | MONRE, other line ministries, sectors, and localities | 2021: The project is approved. 2025: The database development is finalized. | 2025–2030: Annual update |
| | | Strengthen scientific and technological research on climate change adaptation. | Develop research with a focus on new technologies for climate change adaptation. | MOST, MONRE | 2021: The list of research themes is approved. 2025: Studies during the period 2021–2025 are completed. | 2030: Studies during the period 2026–2030 are completed. |
| | | | Develop and submit a science and technology adaptation program for approval. | MOST, MONRE | 2021: The program is approved. 2025: Completion, summary, and assessment. | |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----------|---|--|--|-------------------------------------|---|---|
| | | | | | By 2025 | By 2030 |
| VI | International collaboration | | | | | |
| 1. | Fulfill the obligations of a Party to the UNFCCC. | Develop a national report on climate change adaptation for UNFCCC. | Develop and periodically update the National Report on Climate Change Adaptation to submit to UNFCCC. | MONRE and other relevant ministries | 2024: The first report is approved. | Biennially updated. |
| 2. | Strengthen international collaboration. | Strengthen cooperation, negotiation, and sharing of experiences with international organizations in climate change adaptation. | Proactively participate in international negotiations on climate change and implementation of the Paris Agreement on climate change. | MONRE and other relevant ministries | Annual approval of the plans and participation in negotiations. | Annual approval of the plans and participation in negotiations. |
| | | | Actively cooperate with other countries in climate change adaptation projects and programs in Vietnam. | MONRE and other relevant ministries | Pilot implementation. | Upscaling. |
| | | | Organize programs to share international experiences in the field of climate change adaptation. | MONRE and other relevant ministries | Pilot implementation. | Upscaling. |
| | | | International cooperation in monitoring transboundary impacts of climate change response activities; identify solutions to minimize impacts and take advantage of opportunities for socioeconomic development. | MONRE and other relevant ministries | Pilot implementation. | Upscaling. |

B. Natural Disaster Prevention

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|---|--|---|---|---|--------------------------------------|
| | | | | | By 2025 | By 2030 |
| 1. | Improve readiness to respond to climate change-induced disasters. | Strengthen the capacity of climate change monitoring and hydrometeorological observation, forecasting, warning, and informing of natural disasters to proactively respond to climate change. | Develop a monitoring system for climate change and sea-level rise. | MONRE | 2021: The project is approved. 2022–2025: Project implementation. | Maintain operation of the system. |
| | | | Modernize the system of hydrometeorological observation and monitoring of salinity intrusion. | MONRE | 2021: The project is approved. 2022–2025: Project implementation. | Maintain operation of the system. |
| | | | Modernize the technology of hydrometeorological forecasting; develop forecast and early warning systems for natural disasters and extreme weather and climate events. | MONRE | 2021: The project is approved. 2022–2025: Project implementation. | Completion, summary, and evaluation. |
| | | | Strengthen disaster information transmission capacity; ensure adequate, accurate, and timely information transmission for natural disaster prevention and control. | MIC, MARD, MONRE, Voice of Vietnam, Vietnamese Television | 2024: Announce and promulgate irrigation and disaster prevention and control planning integrated with climate change. | Completion, summary, and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|---|--|--|-----------------------|---|--------------------------------------|
| | | | | | By 2025 | By 2030 |
| 1. | Improve readiness to respond to climate change-induced disasters. | Strengthen the safety level of the system of irrigation works for natural disaster prevention. | Review, adjust, and manage irrigation planning and disaster prevention integrated with climate change. | MARD | 2024: Announce and promulgate irrigation and disaster prevention and control planning integrated with climate change. | |
| | | | Invest in developing a disaster early warning system for reservoirs to proactively respond to climate change. | MARD | 2021: The project is approved. 2025: The project is completed. | |
| | | | Review and evaluate the safety level of the system of irrigation works and natural disasters prevention. | MARD | 2022: The report on the safety level of the system of irrigation works and natural disasters prevention is published. | |
| | | | Develop flood maps and prepare flood control plans for downstream areas of key reservoirs in case of emergency, i.e., flood discharge and dam failure. | MARD | 2021: The project is approved. 2025: Maps and flood control plans for flood discharge and dam failure in key reservoirs are published. | |
| | | | Invest in constructing, repairing, and upgrading reservoirs, dike systems, and natural disaster prevention works that are highly vulnerable to climate change impacts. | MARD | 2021: The project is approved. 2022–2025: Pilot investment into certain key structures. | Completion, summary, and evaluation. |
| | | | Strengthen and construct the key and critical natural disaster prevention and control structures. | MARD | 2021: The project is approved. 2022–2025: Pilot investment in certain key structures. | Completion, summary, and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|---|-----------------------|---|-------------------------------------|
| | | | | | By 2025 | By 2030 |
| 2. | Improve the disaster risk management system. | Identify, zone, and forecast disaster risk levels. | Review and update the disaster risk levels. | MONRE | 2022: The review and update of the natural disaster risk levels are approved. | |
| | | | Define risk zones and warn of disaster risks for planning and management of disaster prevention as well as climate change response. | MONRE | 2022: The results of risk zoning and disaster risk warning are announced. | |
| | | Strengthen capacity management measures and promote disaster risk reduction. | Develop a disaster prevention plan; identify natural disaster response and remedial measures at all levels. | MARD | 2021: The plan for disaster prevention is approved. 2025: Summary and evaluation. | |
| | | | Community-based disaster risk management, using the knowledge of local people in disaster prevention. | MARD | 2021: The project is approved. 2025: Pilot implementation in some key works. | Upscaling, summary, and evaluation. |
| | | | Review, evaluate, deploy, and replicate community-based disaster prevention model. | MARD | 2021: Summary and review the models. 2022–2025: Replication | Upscaling, summary, and evaluation. |
| | | | Capacity building for search and rescue forces. | MARD | 2021: The project is approved. 2022–2025: Pilot implementation in some key structures. | Upscaling, summary, and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|---|---|--|-------------------------------------|
| | | | | | By 2025 | By 2030 |
| 3. | Minimize damage caused by natural disasters. | Improve capacity to prevent and combat natural disasters and extreme weather events. | Strengthen the capacity to prevent flash floods and landslides for the affected areas, especially the northern mountainous areas. | MARD | 2021: The project is approved. 2022–2025: Pilot implementation in some key works. | Upscaling, summary, and evaluation. |
| | | | Strengthen the capacity to prevent storms, floods, and extremely severe floods in river basins nationwide. | MARD | 2021: The project is approved. 2022–2025: Pilot implementation in certain key structures. | Upscaling, summary, and evaluation. |
| | | | Develop a plan to prevent harm and damage from drought, storm surge, and salinity intrusion. | MARD | 2021: The plan is approved. 2022–2025: Implementation | Upscaling, summary, and evaluation. |
| | | Propose solutions to address climate change losses and damage. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Upscaling, summary, and evaluation. | |
| | | Identify and implement solutions to share climate risks and reduce climate change losses and damage. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Upscaling, summary, and evaluation. | |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|--|--|--|---|
| | | | | | By 2025 | By 2030 |
| 3. | Minimize damage caused by natural disasters. | Strengthen measures to prevent landslides along river banks and coastlines. | Investigate, identify causes, and propose solutions to prevent landslides along river banks and coastlines. | MONRE | 2021: The project is approved. 2025: Summary and review. | |
| | | | Forecast of coastal fluctuations in the Central Coast and in the Mekong Delta. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | Strengthen and construct anti-landslide works in key and critical areas. | MARD | 2021: The project is approved. 2022–2025: Urgent works are constructed. | Investment according to the roadmap; completion, summary, and evaluation. | |
| | | Strengthen construction measures to cope with increasing drought and salinity intrusion. | Review, construct, and upgrade irrigation systems in estuarine areas and vulnerable areas to cope with drought, sea-level rise, and saltwater intrusion. | MARD | 2021: The project is approved. 2022–2025: Urgent works are constructed. | Investment according to the roadmap; completion, summary, and evaluation. |
| | | | Construct a number of large reservoirs in areas highly prone to drought to store water for agricultural cultivation in the context of climate change. | MARD | 2021: The project is approved. 2025: Urgent works are constructed. | Investment according to the roadmap; completion, summary, and evaluation. |

C. The Environment and Biodiversity

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|---|-----------------------|--|--------------------------------------|
| | | | | | By 2025 | By 2030 |
| 1. | Improve the adaptability of natural ecosystems and biodiversity. | Strengthen the management of ecosystems and biodiversity. | Investigation and inventory of biodiversity and development of a national database on biodiversity. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Develop a map of climate change risk zoning for different natural ecosystems. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | Enhance the resilience of natural ecosystems; protect and conserve biodiversity in the context of climate change and sea-level rise. | Evaluate, implement, and replicate biodiversity conservation models that are suitable to changing climate conditions. | MONRE | 2021: Summary and evaluation of the models. 2022–2025: Replication of the models. | Upscaling |
| | | | Develop an emergency response plan for vulnerable ecosystems. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |
| | | | Establish rescue zones, peripheral conservation, rearing, and propagation of endangered species. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |
| | | | Recover degraded key natural ecosystems. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|---|---|--|--|---|--------------------------------------|
| | | | | | By 2025 | By 2030 |
| 2. | Ecosystem-based and community-based adaptation. | Enhance the participation of local communities in monitoring, conservation, and management of biodiversity. | Increase participation and employment opportunities for local communities in monitoring, conservation, and management activities for ecosystems and biodiversity. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |
| | | Develop ecosystem-based and community-based adaptation models. | Develop a model of a community ecological village capable of coping with natural disasters and climate change. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |
| | | | Develop ecosystem services and conserve biodiversity adaptable to climate change, with priority given to conserving genetic resources, endangered species, and important ecosystems. | MONRE | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |
| | | | Community-based adaptation using local people's knowledge, ensuring sustainable livelihoods and prioritizing vulnerable communities. | Line ministries, localities, and socio-political organizations | 2021: The project is approved. 2022–2025: Implementation | Completion, summary, and evaluation. |

D. Water Resources

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|---|--|-----------------------|--|--|
| | | | | | By 2025 | By 2030 |
| 1. | Minimize the impacts of climate change on water resources. | Improve the effectiveness of water resources management in the context of climate change. | Review and amend the Law on Water Resources. | MONRE | 2025: The revised Law on Water Resources is enacted. | |
| | | | Develop a National Strategy on Water Resources to 2030, with a vision to 2050. | MONRE | 2025: National strategy is issued. | |
| | | | Develop water resources planning in large river basins. | MONRE | 2025: Water resources planning is issued. | |
| | | | Review and adjust the reservoir operating procedures for river basins. | MONRE, MARD, MOF | 2025: 50% of the operating procedures are issued. | 100% of the operating procedures are issued. |
| | | | Develop mechanisms and models of regional linkages in terms of water resources management. | MONRE | 2022: Mechanisms and models of regional linkages are issued. 2023–2025: Implementation. | Summary and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|---|---|--|--------------------------------------|
| | | | | | By 2025 | By 2030 |
| 1. | Minimize the impacts of climate change on water resources. | Enhance water resources monitoring and protection. | Inventory national water resources. | MONRE | 2025: The report on inventory of national water resources is approved. | |
| | | | Complete the system of national water resources monitoring and observation. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | Operation of the system. |
| | | | Classify pollution levels; make plans for prioritizing protection and restoration of water quality in river basins. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Identify and publish safety thresholds for groundwater extraction in different regions, especially in the Mekong Delta. | MONRE | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Restore and develop protection forests and mangroves to protect water sources and prevent erosion along river banks and coastlines. | MARD and provincial and municipal People's Committees | 2021: The project is approved. 2022-2025: Implementation. | Completion, summary, and evaluation. |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--|--|---|---|--|---------|
| | | | | | By 2025 | By 2030 |
| 1. | Minimize the impacts of climate change on water resources. | Improve water storage capacity and water use efficiency. | Investigate, evaluate, and develop comprehensive solutions for water storage based on natural trends of each region. | MONRE | 2021: The project is approved; 2022–2025: Implementation. | |
| | | | Assess the impacts of climate change on ensuring the clean water supply to rural areas. | MONRE, MARD | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Investigate, evaluate, and map out areas at high risk of drought and water shortage; search and delineate potential areas for underground water exploitation in regions where surface water is scarce. | MONRE, provincial and municipal People's Committees | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Investigate, evaluate, and identify the solution of artificial groundwater recharge for the Mekong Delta, Southern Central, and Central Highlands in order to improve the efficiency of groundwater resources use in sustainable ways in the context of climate change. | MONRE, MARD | 2021: The project is approved. 2025: Completion, summary, and evaluation. | |
| | | | Develop, implement, and upscale models of economical and efficient water use. | MARD, MOC, provincial and municipal People's Committees | 2021: The project is approved. 2022–2025: Pilot implementation. | |
| | | | Construct additional water storage projects, exploit and use water sources in the context of increasing droughts due to climate change. | MARD, provincial and municipal People's Committees | 2021: The project is approved. 2022–2025: Pilot implementation. | |

| No. | Adaptation needs | Objectives | Tasks | Implementation agency | Periodic results | |
|-----|--------------------------------------|---|--|-----------------------|---|---------------------------|
| | | | | | By 2025 | By 2030 |
| 2 | Share transboundary water resources. | Strengthen international cooperation in transboundary water management. | Promote international negotiations to establish rules for sharing transboundary water resources with upstream countries. | MONRE, MOFA | 2021: The project is approved. 2022–2025: Implementation | Continued implementation. |

Annex 2. List of Interviewed Companies

| No. | Name | Types | Sectors |
|-----------------------|--|-------------|--|
| Southern areas | | | |
| 1 | Cai Bat Cooperative | Cooperative | Agricultural production and processing |
| 2 | Southern Agricultural Cooperative | Cooperative | Agricultural production and processing |
| 3 | Thanh Cong Cooperative | Cooperative | Agricultural production and processing |
| 4 | Rach Gia Organic Agricultural Production Cooperative | Cooperative | Agricultural production and processing |
| 5 | Loc Troi Group Joint Stock Company | JSC | Agricultural production and processing |
| 6 | Hoan Minh Nhat Joint Stock Company | JSC | Agricultural production and processing |
| 7 | Trung Thanh High-tech Agriculture Joint Stock Company | JSC | Agricultural production and processing |
| 8 | An Giang Import-Export Joint Stock Company | JSC | Agricultural production and processing |
| 9 | Blue Sun Joint Stock Company | JSC | Other (insurance, education, etc.) |
| 10 | Lotus Rice Limited Liability Company | LLC | Agricultural production and processing |
| 11 | Hop Mua Limited Liability Company | LLC | Agricultural production and processing |
| 12 | Xuan Phuong Limited Liability Company | LLC | Agricultural production and processing |
| Central areas | | | |
| 13 | Vietnam Posts and Telecommunications Group | * | Other (insurance, education, etc.) |
| 14 | DOJI Gemstone Jewelry Joint Stock Company | JSC | Other (insurance, education, etc.) |
| 15 | Thua Thien Hue Mineral Joint Stock Company | JSC | Construction/transportation/exploitation |
| 16 | Eagle communication advertising and tourism services Joint Stock Company | JSC | Tourism and services |
| 17 | Hong Duc Joint Stock Company | JSC | Other (insurance, education, etc.) |
| 18 | Viet Mission Joint Stock Company | JSC | Other (insurance, education, etc.) |
| 19 | Hue Global Insurance Joint Stock Company | JSC | Other (insurance, education, etc.) |
| 20 | Thua Thien Hue Water Supply Joint Stock Company | JSC | Construction/transportation/exploitation |

| No. | Name | Types | Sectors |
|-----|---|-------|--|
| 21 | DMZ Tourism Joint Stock Company | JSC | Tourism and services |
| 22 | Thanh Dat Joint Stock Company | JSC | Construction/transportation/exploitation |
| 23 | Scavi Hue Two Member Limited Liability Company | LLC | Other (insurance, education, etc.) |
| 24 | Ton Bao Khanh Limited Liability Company | LLC | Construction/transportation/exploitation |
| 25 | Thanh Ngan Limited Liability Company | LLC | Construction/transportation/exploitation |
| 26 | Thanh Loi Multi-Sector Investment Limited Liability Company | LLC | Tourism and services |
| 27 | Mai Linh Hue Limited Liability Company | LLC | Tourism and services |
| 28 | Mondial Travel Limited Liability Company | LLC | Tourism and services |
| 29 | Hue Seafood Limited Liability Company | LLC | Agricultural production and processing |
| 30 | Hue Breeding Limited Liability Company | LLC | Agricultural production and processing |
| 31 | Hue Viet Organic Limited Liability Company | LLC | Agricultural production and processing |
| 32 | Minh Dat Limited Liability Company | LLC | Construction/transportation/exploitation |
| 33 | Asia Limited Liability Company | LLC | Tourism and services |
| 34 | Hoai An Wood Enterprise | * | Other (insurance, education, etc.) |

