

CLIMATE PUBLIC EXPENDITURE AND INVESTMENT REVIEW (CPEIR) – PERIOD 2010-2020 – BAC NINH PROVINCE

1. Climate change in Bac Ninh

General introduction

Bac Ninh province is located in the Red River Delta of the northern part of Vietnam. It is the smallest province of Vietnam with natural land area of 823 km². It is situated to the east of the nation's capital, Hanoi, and borders Bắc Giang Province, Hưng Yên Province, Hải Dương Province and Hanoi.

In 2020, Bac Ninh population was about 1,419,126 people, of which urban population accounted for 31.2%. Labor force above age of 15 was 744,570 people, accounting for 53% of the province's population



Bac Ninh province lies on the major traffic artery linking Hanoi and China and is a preferred destination for Chinese investment as well as multinational companies such as Samsung, Canon, Sumitomo and is an industrial hub. In 2020, export from the province was USD 39 billion, up 14.6 percent year-on-year, while import reached USD 33.4 billion, or 19% higher than that of 2019. Exports by FDI firms made up 99.8 percent of the total and rose 14.3 percent, while those by private businesses surged dramatically 60 percent despite its modest share in total provincial export. Growth in exports year-on-year was high for electronics (USD 34,036 billion, or increase 14.4%), and computers and components (USD 3,186 billion, increase 16.8%)¹.

Impacts of climate change on Bac Ninh

Bac Ninh province also recorded diverse impacts of climate change on people's livelihood and strategic productive industries. According to recent estimates and reports, over the last 20 years, the temperatures have increased relative to the base period (1986-2005) and the number of days hotter than 35⁰C has increased throughout the province. The temperature increase in the East and South of the province is slightly lower than that in the West and North.

In 2018, the weather was especially unpredictable. In the East Sea, there were 13 tropical typhoons, and Bac Ninh was affected by the tropical low-pressure trench formed by the passage of typhoon No. 3 and typhoon No. 4. On the Cau River on August 30, 2018, water level reached its peak at +5.13, or 17 cm lower than the standard level of the 2nd alarming degree. At the position of Km58 + 100 on the right-hand side dyke of Cau River, Hoa Long commune, Bac Ninh city, there was a landslide of the river side slope with a length of 70 meter. The morphology of the riverbed of the Red River and Thai Binh River system has been unforeseeably changed in the last few years, especially from 2005 onwards. Deep erosion in the bad of the Duong River has led to an increase in water volume flowing out of Red River into Duong River by 30% to 37%, sometimes even up to 40%. This deep erosion of riverbed has also resulted in lowering water level of Duong River by about 2 meters in recent years.

¹ Source: Bac Ninh Provincial Statistical Yearbook of 2020.

The risk of water shortages and water pollution can also threaten local agricultural production in the context of climate change. Another important challenge is flooding in urban areas. With inundation level of less than 0.5m in the base period (2000), Bac Ninh City suffered most with the largest inundated land areas (equivalent to about 10.5% of total urban territory), while other districts including Yen Phong and Luong Tai suffered the least with only 0.5% of their land being flooded. However, if inundation level is higher than 1 meter, 76.6% of Bac Ninh city will be underwater. In addition, a strong tornado caused serious damages to Bac Ninh province in July 2016. Lasting for only in about 1 minute, damages caused by the tornado was more than VND 2 billion.²

Activities to respond to climate change in Bac Ninh

In the National Target Program to Respond to Climate Change and Green Growth, Bac Ninh province has planned and implemented various actions (see also section 4 below).

Firstly, the province focuses on strengthening community-based responses to climate change. Capacity building activities emphasized on (i) disseminating knowledge to enhance the community's responsibility to adapt to climate change and mitigate greenhouse gas emissions; (ii) improving capacity of all sector agencies and government levels to have effective and timely response plans to climate change; and (iii) strengthening research and development activities via conducting various research projects on impact assessment of climate change on specific sectors and local areas as well their adaptive capacity.

Secondly, capacity to manage, monitor and improve climate change response mechanisms and policies has been enhanced through frequent review and adjustment of relevant policies, and improvement of capacity for early anticipation and warning of increasingly extreme circumstances induced by climate change. Climate change related projects were implemented to put climate change monitoring system into operation with modern technology, high information accuracy.

Thirdly, activities to respond to climate change and to reduce greenhouse gas emissions were conducted, mostly in agriculture production and irrigation and water management. Specifically, in agriculture production, safe rice, vegetable and fruit production models, concentrated farming for livestock, poultry and aquaculture production has been extensively promoted through high-tech application and adoption of animal waste treatment in husbandry production in an environmentally friendly and greenhouse gas emission reduction manner. Reforestation efforts have been intensively made via new plantation, renovation and upgrading of existing forest areas.

In irrigation work, close monitoring has been intensified to make prompt needed reparation and rehabilitation of flooding prevention works. Intensive investment in strengthening network of river embarkment, dikes and irrigation system has been made. Violations of the Law on River Embarkment and Dikes and Irrigation Law were investigated and punished.

Fourthly, responses to climate change have been integrated into provincial and sector development strategies and plans. Typically, development of sustainable exploitation, use of surface water, and groundwater plans have been critically emphasized.

2. Review of climate public investment and recurrent expenditure in Bac Ninh

2.1. Sources of total climate change budget

a) Total climate budget 2010 – 2020

² Source: Bac Ninh Action Plan to Response to Climate Change in 2021-2030 period with a vision towards 2050

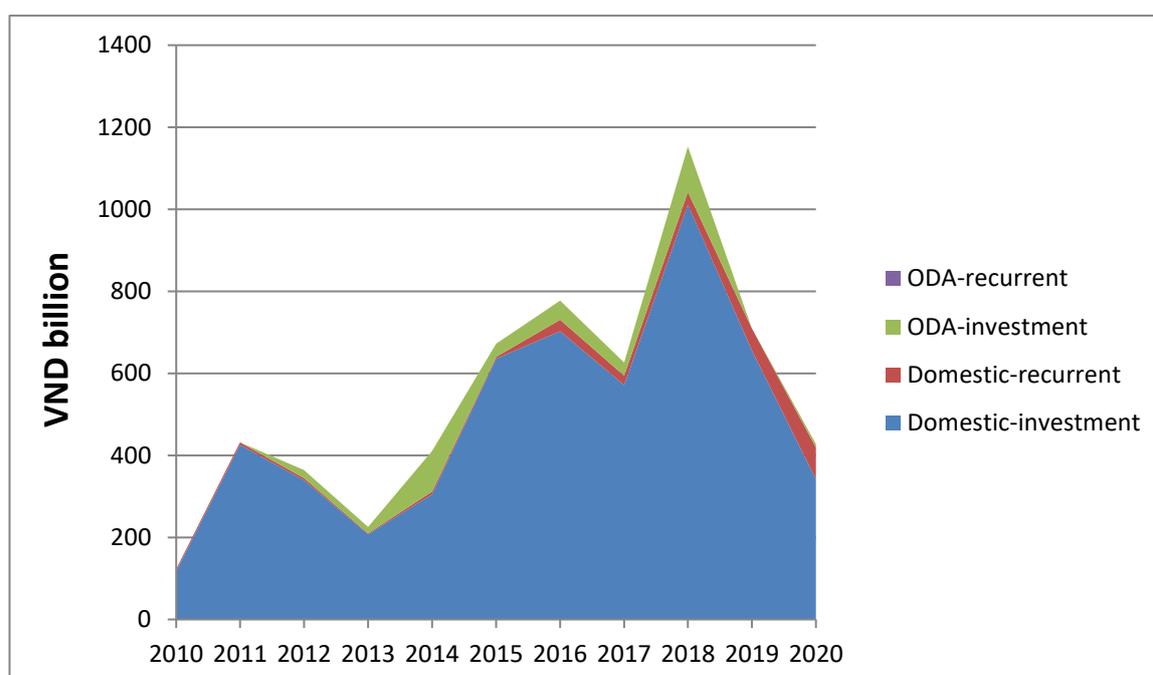


Figure 1: Total climate change budget expenditure in Bac Ninh - includes investment expenditure, recurrent expenditure; from domestic sources and ODA (at 2020's constant prices)

Table 1: Data on climate change budget expenditure in Bac Ninh by year (2010 to 2020)

Unit: VND billion

	Domestic investment	ODA investment	Domestic recurrent	ODA recurrent	Total
2010	117.506	0.025	5.563	0	123.094
2011	425.396	0	6.382	0	431.778
2012	339.325	20.075	4.936	0	364.336
2013	207.336	16.048	2.242	0	225.626
2014	304.791	98.886	6.934	0	410.611
2015	635.373	32.254	4.853	0	672.48
2016	702.264	47.334	28.020	0	777.618
2017	570.646	32.025	23.775	0	626.446
2018	1,011.066	110.534	31.015	0	1152.615
2019	656.090	0	53.430	0	709.52
2020	341.310	8.688	77.631	0	427.629

- The average total climate budget expenditure, including investment and recurrent expenditures, on average of 11 years from 2010 to 2020 in Bac Ninh province is about VND 538 billion/year. The value of this budget expenditure for the period 2016- 2020 is nearly 1.4 times higher, about VND 739 billion/year. The highest was in 2018 (VND 1,153 billion) and the lowest was in 2010 (about VND 123 billion).
- In Bac Ninh, climate change budget expenditure is mainly focused on investment spending, at VND 5,677 billion for the entire period, or 23 times higher than the level of recurrent expenditure (only about VND

245 billion). In other words, investment spending accounts for almost 96% total budget expenditure on climate change.

- In the period 2010-2020, the average annual domestic investment expenditure on climate change is VND 5,311 billion, accounting for 93.6% of the total investment expenditure, the ODA capital contribution is about VND 366 billion, accounting for 6.4%. The proportion of investment from ODA is erratic, with no ODA investment in some years (in 2011 and 2019), and as high as 10% of total investment expenditure (VND 111 billion in 2018) in other years.
- Recurrent expenditures related to climate change averaged about VND 22 billion/year, but the absolute amounts vary substantially across years. Recurrent expenditure for climate change in 2016-2020 period is 7 times higher than the level of 2010-2015 period, in which it reaches the highest level of VND 78 billion in 2020. This source of capital for recurrent expenditure is 100% domestic; data received did not record any ODA allocated to recurrent climate change expenditure.

b) The total climate change budget as a percentage of the total Provincial budget from 2010 – 2020.

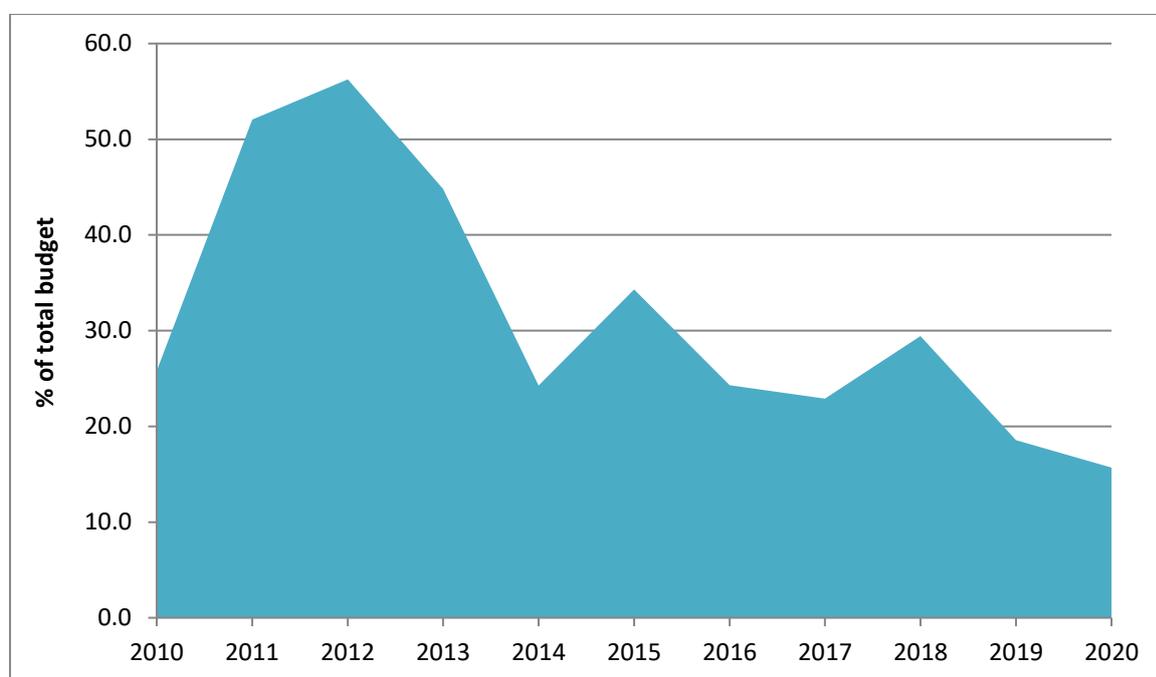


Figure 2: Ratio of budget expenditure on climate change to the total provincial budget for the period 2010-2020 (unit: %)

Figure 2 above shows the proportion of budget expenditure on climate change in relation to the total expenditure of the province; the average value for the period 2010-2020 is 31.7%. However, this ratio fluctuates over years depending on the rate of disbursement, the start or end of an investment project or expenditure program etc. This ratio has been remarkably varied from less than 16% in 2020 to more than 50% in 2011 and 2102.

Table 2: Share of CC expenditure on total provincial budget expenditure

	Total CC budget (VND billion)	Total Provincial Budget (VND billion)	% of total budget
2010	123.094	476.812	25.8
2011	431.778	829.708	52.0
2012	364.336	647.667	56.3

2013	225.626	503.587	44.8
2014	410.611	1,692.033	24.3
2015	672.48	1,959.396	34.3
2016	777.618	3,200.933	24.3
2017	626.446	2,737.510	22.9
2018	1,152.615	3,915.797	29.4
2019	709.52	3,823.381	18.6
2020	427.629	2,725.894	15.7

2.2. Purpose of total climate change budget

Allocation of total climate change budget to adaptation and mitigation

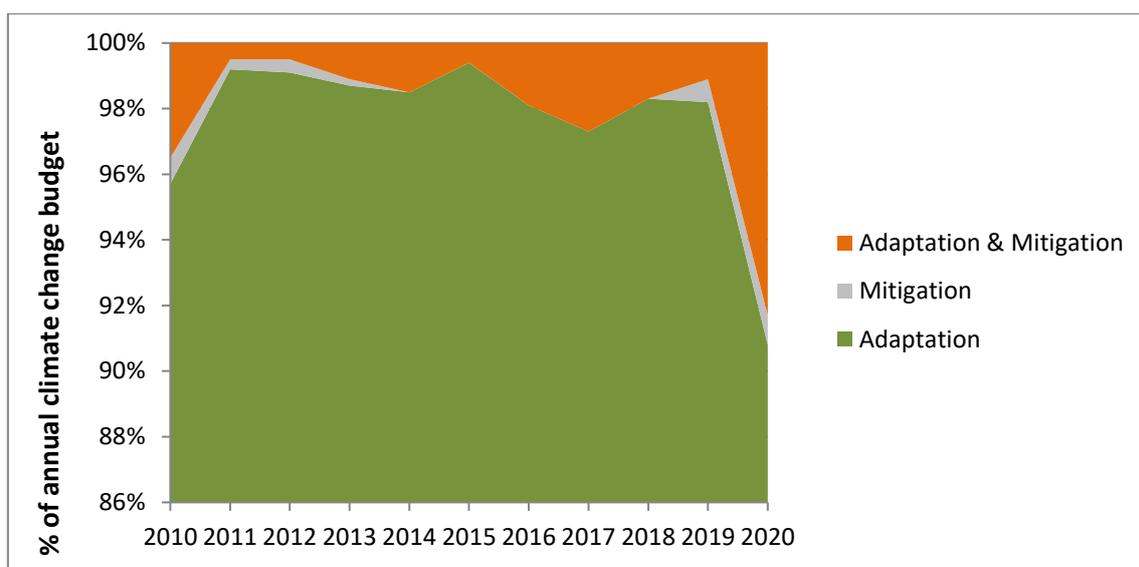


Figure 3: Conceptual distribution of public spending on climate change (i.e. categories: Adaptation, mitigation, adaptation + reduction)

- In the entire period 2010-2020, climate budget spending on adaptation accounts for up to 97.6%, the field of mitigation accounts for a neglectable proportion of about 0.3%, and the combined fields of adaptation and mitigation for about 2.1%.
- The proportion of budget expenditure related to climate change adaptation in total budget expenditure for climate change is similar between the 2010-2015 and 2016-2020 periods, accounting for 98% and 96% respectively. Typically, there are some years in the mid of two periods when no public expenditure for mitigation was made, including years 2014 to 2018. In 2013, there was only one combined project of both mitigation and adaptation which was the National Targeted Program on Afforestation and Forest Protection and Development.
- Towards the end of the 2016-2020 period, there are more expenditures in absolute terms on mitigation projects. Together in year 2019 and 2020, about VND 8.8 billion was spent on the field of mitigation, accounting for 72% of total mitigation expenditure of the entire 2010-2020 period. Typical local mitigation projects can be mentioned as the Developing Action Plan for carbon dioxide emission reduction and development of low carbon society in Bac Ninh. The total investment for this action was about VND 4.9 billion and 3.8 billion in year 2019 and 2020 respectively.
- 2020 also witnessed the highest level of expenditure for mixed adaptation and mitigation projects in both absolute and relative terms. This highest level of expenditure has been fully attributed to provincial

recurrent expenditure on developing comprehensive climate-related natural resource and environment monitoring database. In other years, the mixed adaptation and mitigation projects and programs also included the provincial effort to digitalize climate-related data and adoption of information technology in monitoring climate change impacts in the province.

Table 3: Expenditure decomposition into Adaptation, Mitigation and Mix

	Adaptation		Mitigation		Adaptation & Mitigation	
	VND billion	%	VND billion	%	VND billion	%
2010	117.86	95.8	0.95	0.8	4.259	3.5
2011	428.711	99.3	1.087	0.3	1.979	0.5
2012	361.306	99.2	1.28	0.4	1.75	0.5
2013	222.685	98.7	0.41	0.2	2.531	1.1
2014	403.559	98.5	0	0.0	6.103	1.5
2015	668.21	99.4	0	0.0	4.271	0.6
2016	763.169	98.1	0	0.0	14.45	1.9
2017	609.446	97.3	0	0.0	17	2.7
2018	1067.771	98.3	0	0.0	18.963	1.7
2019	696.761	98.2	4.915	0.7	7.843	1.1
2020	380.25	90.8	3.86	0.9	34.831	8.3

2.3. Allocation of total climate budget to climate change themes

i) Allocation of total climate change budget to pillars:

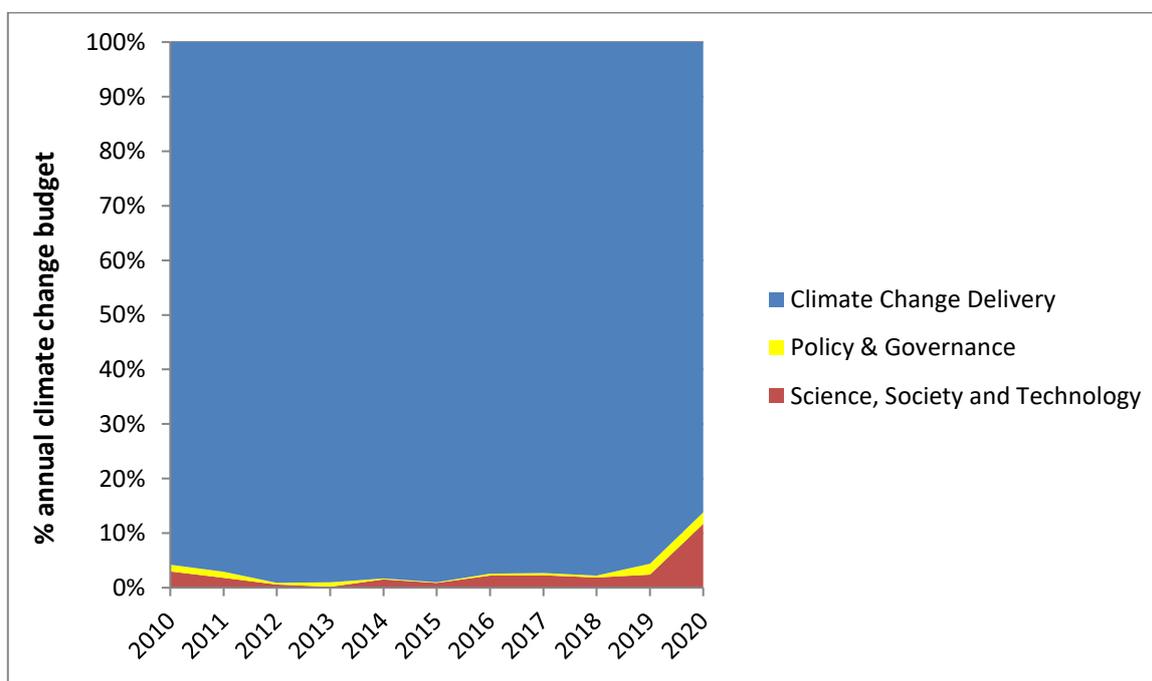


Figure 4: Distribution of public expenditure on climate change – grouped into Investment expenditure (Climate change delivery) and Recurrent expenditure (classified into Science, society and technology and Policy & governance)

- Expenditures on climate change are classified as investment and recurrent expenditures, in the period 2010-2020. The former is mainly focusing on climate change delivery (CCD) while the latter is mostly for Science, Society and Technology (ST) and Policy & governance (PG). Expenditure on ST and PG in the

period 2010-2020 accounted for 3.2%, while CCD for 96.8% of total public expenditures on climate changes.

- Recurrent expenditure on climate change was estimated about VND 173 billion for the entire 2010-2020 period or VND 16 billion per year, of which spending for ST and PG has accounted for 77% and 23% respectively. Key activities in ST are to collect climate related data and assess impact of climate change on the social economic activities in the province, while that in PG focuses on formulating various master plans and action plans to respond to different dimensions of climate change.

Table 4: Expenditure decomposition into ST, PG and CCD

	ST		PG		CCD	
	VND billion	%	VND billion	%	VND billion	%
2010	3.701	3.0	1.431	1.2	117.937	95.8
2011	7.9	1.8	4.576	1.1	419.301	97.1
2012	2.319	0.6	1.337	0.3	380.68	99.0
2013	0.509	0.2	1.733	0.8	223.384	99.0
2014	6.25	1.5	0.911	0.2	402.5	98.3
2015	5.995	0.9	0.756	0.1	665.73	99.0
2016	17.428	2.2	3.419	0.4	756.77	97.3
2017	14.396	2.3	2.594	0.4	609.455	97.3
2018	20.167	1.9	3.797	0.3	1063.144	97.8
2019	17.147	2.4	13.96	2.0	678.412	95.6
2020	49.153	11.7	8.991	2.1	360.797	86.1

ii) Allocation of Climate Change Delivery tasks (annual mean expenditure VND billion, 2010 – 2020):

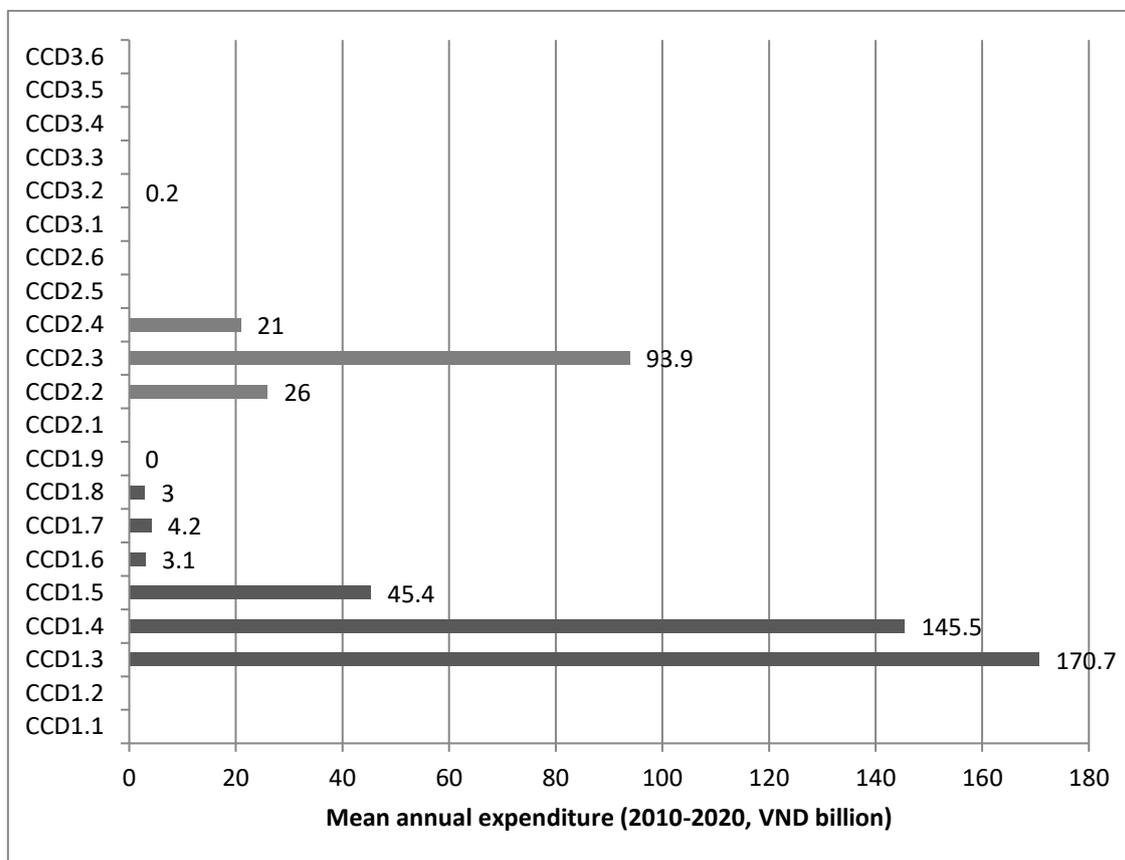


Figure 5: Distribution of public expenditure on climate change – grouped into Investment expenditure (Climate change delivery)

	count	%		count	%		count	%
CCD1.1	0.0	0.0	CCD1.8	3.0	0.6	CCD2.6	0.00	0.0
CCD1.2	0.0	0.0	CCD1.9	0.0	0.0	CCD3.1	0.00	0.0
CCD1.3	170.7	33.3	CCD2.1	0.1	0.0	CCD3.2	0.18	0.04
CCD1.4	145.5	28.4	CCD2.2	26.0	5.1	CCD3.3	0.00	0.0
CCD1.5	45.4	8.8	CCD2.3	93.9	18.3	CCD3.4	0.00	0.0
CCD1.6	3.1	0.6	CCD2.4	21.0	4.1	CCD3.5	0.00	0.0
CCD1.7	4.2	0.8	CCD2.5	0.0	0.0	CCD3.6	0.00	0.0

In the field of investment projects to respond to climate change 05 topics have accounted for an average of VND 481.5 billion per year, accounting for almost 94% of total investment climate change, including:

- CCD 1.3 (Irrigation; investment value of VND 170.7 billion/year, accounting for 33.3%),
- CCD 1.4 (River dike embarkment; investment of VND 160.1 billion/year, accounting for 28.4%),
- CCD 2.3 (Transport; investment of VND 93.9 billion/year, accounting for 18.3%),
- CCD 1.5 (Water quality and supply; investment of VND 45.4 billion/year; accounting for 8.8%) and
- CCD 2.2 (Residential and city area resilience; investment of VND 26 billion/year; accounting for 5.1%).

The next five investment areas that absorbed significant share of investment expenditures on climate change are as follows: Waste management and treatment (CCD 2.4), Forest development (CCD 1.7), Rural development and food security (CCD 1.6), Fisheries & aquaculture (CCD 1.8), and Energy efficiency (CCD 3.2) with total investment of all five sectors is about VND 31.5 billion/year or 6.1% of the total.

iii) Allocation to Science, Society and Technology and to Policy and Governance tasks (annual mean expenditure VND billion, 2010 – 2020):

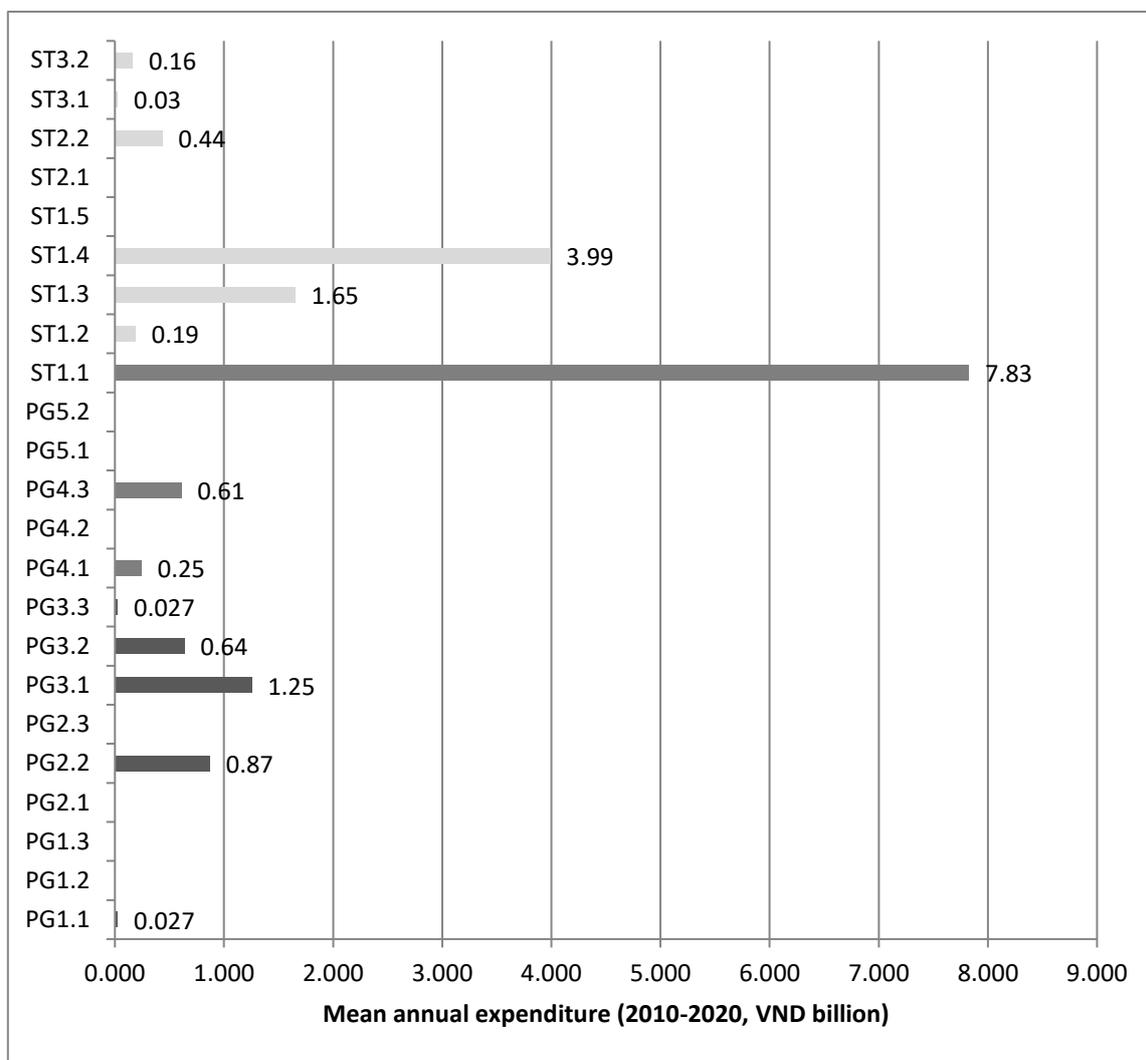


Figure 6: Distribution of public expenditure on climate change between Science, Society and Technology (ST) and Policy & Governance (PG)

Regarding recurrent expenditures on local climate change response in the 2010-2020 period, 05 themes received most funding for ST and PG are as follows:

- ST 1.1 (Building information and database; investment value of VND 7.83 billion/year, accounting for 44%),
- ST 1.4 (Survey and assessment on CC impacts; investment value of VND 4 billion/year, accounting for 22%),
- ST 1.3 (Biological & genetic resource strengthening; investment value of VND 1.7 billion/year, accounting for 9%),
- PG 3.1 (Action and Sector Plans; investment value of VND 1.26 billion/year; accounting for 7%) and
- PG 3.2 (CC Impact assessments; investment value of VND 0.64 billion/year; accounting for 4%).

Total expenditures in those top five themes are VND 15.4 billion per year, accounting for 86% of total public expenditure in ST and PG.

	Count	%		Count	%		Count	%
PG1.1	0.027	0.15	PG3.3	0.027	0.15	ST1.3	1.65	9.21
PG1.2	0	0.00	PG4.1	0.25	1.37	ST1.4	3.99	22.22

PG1.3	0	0.00	PG4.2	0	0.00	ST1.5	0	0.00
PG2.1	0	0.00	PG4.3	0.61	3.39	ST2.1	0	0.00
PG2.2	0.87	4.86	PG5.1	0	0.00	ST2.2	0.44	2.43
PG2.3	0	0.00	PG5.2	0	0.00	ST3.1	0.03	0.15
PG3.1	1.26	6.98	ST1.1	7.83	43.57	ST3.2	0.16	0.91
PG3.2	0.64	3.54	ST1.2	0.19	1.06			

2.4. Overseas Development Assistance climate programmes

Contribution of ODA to total climate change budget (average 2010 –2020):	6.26 %
Five largest ODA allocations in terms of climate budget:	
1. Building District Clean Water Supply Facilities – WB loan project (2014, 26.4%)	
2. Rural Water Supply and Sanitation Project, Component for Improving Water Supply Conditions in Districts (2017-2018, 20.3%)	
3. Hoai Thuong Commune pumping station project (2016-2018, 17.3%)	
4. Rural Water Supply and Sanitation, Component for Improving Sanitary Conditions for Schools and Hospitals (2016-2018, 13.3%)	
5. Construction of Waste Water Treatment and Drainage System for Bac Ninh towns (period 2003-2010) (2012-2013, 8.8%)	

2.5. Policy and planning instruments

Instrument	Yes (√) or No (X)
Local NTP-RCC, report period to 2015	√
Climate Change Action Plan	√
Green Growth Action Plan	√
Plan for Implementation of Paris Agreement	√
Others: none	

Achievements of the NTP-RCC until 2020:

For 2011-2015 period:

- Project on assessing the level of climate change and building the provincial climate change scenarios
- Project to develop and implement action plans to respond to climate change in the province
- Project on Establishing Species and Habitat for Dong Xuyen Bird Park
- Investigation and assessment of water resources in Gia Binh district
- Investigated and evaluated water resources in Thuan Thanh district
- Delineated and announced areas subject to registration for groundwater exploitation.

For 2015-2020 period:

Establishing the Fund for Disaster Prevention managed by Bac Ninh Department of Agriculture and Rural Development. The Fund has undertaken such activities as action plan formulations, organizational setting up, frequent inspection, reparation and upgrading of the system of dikes, culverts and drainage works.

Utilizing effectively agricultural land, developing protected forests and upgrading existing forest areas, planting melaleuca along river dikes as natural anti-wave protected forest strips.

Merging the Centre for Energy Saving and Cleaner Production into the Centre for Industry Extension and Industrial Development Consultancy to implement projects on economised and efficient use of energy; issuing the Plan for Economised and Efficient Use of Energy.

Strengthening the local authorities' supervision role through integration of climate change into development master plans and plans, development of an action plan to respond to climate change for the period 2021-2030 and a vision to 2050; development of a plan for implementation of the Paris Agreement on Climate Change; and setting up of the government apparatus for climate change response led by the Department of Natural Resources and Environment.

Building communities to respond to climate change through improving the community health care system, and at the same time raising awareness through education and training,

Climate Change Action Plan (28/10/2019):

Specific goals 2021-2030

- Assess climate change effect for the province in the period to 2030 according to scenarios and provide directions for local authorities on actions responding to climate change
- Based on the “action plan to respond to climate change in the period 2021-2030 with outlook to 2050 in Bac Ninh province”, identify the main impacts of climate change on the province sectors and areas
- Based on the action plan to respond to climate change all the branches to study and integrate climate change response activities in the social economic masterplan and masterplans of sectors
- Identify challenges and opportunities of climate change for development of sectors and areas in Bac Ninh, priority solutions for adaptation and mitigation of GHG emissions; roadmap for implementation; resources

Project portfolio

- 22 projects 2019-2030 in different sectors

Green Growth Action Plan (solutions 2017-2020):

1. Institutional development to implement the Action Plan for the implementation of the Green Growth Strategy:

- Forming a Steering Committee for the implementation of the Green Growth Strategy;
- Add regulations to include content on green growth in local steering documents;
- Develop regulations and programs to concretize the implementation of the Green Growth Action Plan.

2. Reviewing the master plan on socio-economic development and planning for the development of sectors and fields towards green growth:

Develop the Socio-Economic Development Strategy of Bac Ninh Province to 2030 with a vision to 2050 following the green economic model, in which long-term thinking orientations in green growth model development, including pillars : Production, consumption, technology, financial leverage, credit, building green institutions; form a system of quantitative indicators to measure green socio-economic indicators. In this strategy, it is necessary to establish a "green value" system that plays the role of guiding and leading green development efforts.

3. Attracting investment in the direction of green economy:

Attract investment in the direction of economic restructuring in Bac Ninh to accelerate the development process under the green economic model; calling for the attention of private investors investing in green development.

Develop and formulate policies to encourage green businesses, especially green financial leverage, and are committed to implementing green economic rules. Emission inventory and carbon emissions assessment. Evaluate a business's business opportunities in its commitment to comply with green standards, with a focus on risk management and protection of production output during transitions.

4. Green-oriented urban planning and development:

- To review and adjust the planning, implement the Urban Development Program, and make plans on urban improvement according to sustainable urban standards. Guide the pilot construction of green urban construction plans in a number of new urban areas to be deployed in the province.
- Construct synchronous urban technical infrastructure projects, apply new technologies, substitute materials, and new environmentally friendly products;
- Urban planning towards sustainable urban (green, ecological and economic ...) with a focus on sustainable resource use and management for the people, ensuring synchronization in the master plan. housing construction, transportation, water supply - drainage and waste treatment; storm water drainage; Collection and treatment of wastewater and municipal solid waste.
- New rural planning, ensuring standard of living and developing landscape and environment. Implement and achieve the goals of the National Strategy on Rural Water Supply and Sanitation up to 2020; urban water supply and wastewater treatment systems according to planning; to step by step build wastewater treatment systems at district level.
- Planning synchronous development of urban infrastructure, building new urban areas, renovating and embellishing existing urban areas to ensure traffic, landscape and environmental sanitation.
- Develop and promulgate regulations requiring investors to apply green technology, use natural energy, save energy, modern and environmentally friendly materials, and encourage businesses to manufacturing products for the construction and use of green buildings.
- Implementation of green space planning and development. To reserve land fund in adequate planning for the development of green space and water surface in urban centers. Encourage investment and development with socialized capital sources to rapidly increase green space in urban areas.
- Restructuring economic and urban space across the province, implementing the master plan on Bac Ninh urban area to 2030, with a vision to 2050; adjusting the general planning of urban centers; organize the formulation of subdivision plans; to formulate the Urban Development Program of Bac Ninh Province to 2030, to upgrade urban centers in the province according to the roadmap.

5. Developing science and technology and training green human resources

- Select, develop and apply appropriate scientific and technological application models to implement green growth strategy. Research, transfer and apply technical advances, apply processes and technologies for economical and efficient use of seeds, food, agricultural materials, land resources, water ... and reduce emissions. greenhouse gases in agricultural production, ensuring sustainable agricultural development. Research and develop a model to apply technology to treat and reuse by-products and waste in agriculture to produce animal feed, grow mushrooms, make industrial raw materials, biogas and organic fertilizers, and GHG emissions reduction.

- Model of application of biotechnology and microbiological preparations in combination with management solutions to produce safe agricultural products to protect consumers' health and meet integration requirements. Continue to replicate the models, build and complete the province's hi-tech agricultural production experiment zone.

6. Strengthening resource management solutions, protecting the environment

- Planning, managing, exploiting, using economically, effectively and sustainably resources, especially water resources; keep and use effectively the land area specialized in rice cultivation. Efficient and sustainable exploitation of ecology, landscape and biological resources. To encourage the use of energy in the direction of increasing the proportion of renewable energies and new energies.
- Regarding environmental protection: Not to generate and thoroughly treat establishments causing serious environmental pollution; Strive to achieve and maintain the following targets: Over 98% of the population can use hygienic water; over 90% of common solid waste is treated up to standards; 100% of hazardous waste is treated up to standards; 100% of medical wastes are treated up to standards; 100% of operating industrial zones and clusters have centralized wastewater treatment systems meeting environmental standards. Maintain the existing forest area, develop forests on bare land and bare hills, and improve the quality of planted forests. Increase the rate of reusing or recycling domestic waste. Improve the environment of craft villages and rural areas.
- Develop a policy framework and action plan on the use and development of land and water resources towards Green growth toward 2020, vision to 2030. Development of environmental treatment services in zones and clusters. industry in the province. Implementing the Resolution No. 35 / NQ-CP dated March 18, 2013 of the Government on a number of urgent issues in the field of environmental protection; Decision No. 1287 / QD-TTg dated August 2, 2013 of the Prime Minister assigning tasks to implement the Resolution No. 35 / NQ-CP dated March 18, 2013 of the Government; Decision No. 577 / QD-TTg dated April 11, 2013 of the Prime Minister approving the overall project for environmental protection of handicraft villages to 2020 and orientation to 2030; Circular No. 46/2011 / TT-BTNMT dated December 26, 2011 of the Ministry of Natural Resources and Environment on regulations on environmental protection of handicraft villages; Strictly implementing Decree No. 179/2013 / ND-CP dated 14/11/2013 of the Government on regulations on sanctioning of administrative violations in the field of environmental protection.

PIPA (2017-2020)

Reduction of greenhouse gas emissions:

- Improve the effectiveness and efficiency of strategic environmental assessment and environmental impact assessment
- Strengthen control of environmental pollution, especially environmental pollution in industrial zones, clusters, craft villages, river basins, large cities and rural areas.
- Promote the implementation of investment programs and projects on wastewater treatment, solid waste treatment, and hazardous waste management.
- Strengthen information and propaganda to guide people to implement environmental protection measures. To step up the socialization of environmental protection activities, promote the development and use of new energy, clean energy, renewable energy, and sustainable production and consumption.
- Implementing key environmental treatment projects, including the centralized wastewater treatment system of Phong Khe paper craft village; the Dong Ngo landfill treatment and improvement project.
- Investment and efficient operation of urban wastewater treatment plants

- To build district-level concentrated solid waste treatment zones;
- Promote the development and use of new energy, renewable energy, new raw materials, fuels and materials to replace traditional resources.

Climate change adaptation actions

- Implement targeted programs in the agriculture and rural development sectors to develop sustainable fisheries economy and sustainable forestry development; to restructure the agricultural economy, prevent, combat and mitigate natural disasters, and stabilize the people's life.
- Carrying out research and application activities on new plant and animal breed technology, new production techniques to contribute to improving resistance to pests and diseases, increasing plant resistance, animals to reduce the amount of chemicals used in agricultural production, thereby contributing to improving production efficiency and protecting the ecological environment.
- Develop local environmental technical regulations, improve technical standards and standards for infrastructure, public works and people in accordance with the context of climate change.
- Integrated management of water resources in river basins, ensuring water security.
- Continuing to implement the project "Strengthening capacity for water environment management in river basins in Vietnam"
- Ensure food security through protection, rational maintenance and management, sustainable management of land fund for agriculture
- Consolidate, upgrade and complete crucial river dykes
- Implement integrated climate change adaptation based on ecosystems and communities.

Other

- Implement the project to improve the capacity of Center for Natural Resources and Environment Monitoring
- Promote awareness raising activities and effectively implement the Land Law, the Law on Environmental Protection, the National Target Program to Respond to Climate Change
- Annual training programs for cadres, civil servants, public employees and employees to meet the needs of implementing the Paris Agreement.
- Assessment of technology needs for climate change adaptation and GHG emission mitigation in accordance with the province's conditions
- Review and propose mechanisms and policies to encourage research, specializing in technology transfer on climate change; enhance international cooperation in technology research and exchange.
- Mobilize resources for climate change and green growth in accordance with the Paris Agreement.
- Organize the implementation of researches, test application of new technologies in response to climate change in accordance with the actual situation of the province.
- Applying mechanisms and policies to attract the participation of all economic sectors to implement pollution treatment projects
- Participate in building an open, transparent system for greenhouse gas emission reduction activities in the fields of agriculture, construction and
- Periodically develop a National Adaptation Notice including progress toward the adaptation goal in the Paris Agreement - Continue to integrate climate change and export markets issues into policies, plans, plans, and programs.