CLIMATE CHANGE EXPENDITURE AND INVESTMENT REVIEW – PERIOD 2016-2020 - CAO BẰNG PROVINCE

1. Climate change in Cao Bang

General introduction

Located in the north-eastern part of Viet Nam, Cao Bang contains a natural land area of 6,724.6 km^2. Limestone mountains account for 25% of the land area, mountains and earth accounts for 65%, and the remaining 10 percent can be attributed to. Cao Bang is endowed with mineral resources, making the province favourable to the development of extractive industries, particularly mining and mineral processing. As of 2019, the population of Cao Bang province was just above 530,000, with ethnic minorities accounting for 95%. The province's GRDP is estimated to have achieved a growth rate of 7.0% in 2019 and a per capita GRDP of VND 30.01 million (USD 1,392.64) in 2019.

The impact of climate change on Cao Bang

Climate change increases extreme climatic phenomena and natural disasters in Cao Bang province as shown:

- Prolonged heat causes drought, increasing the risk of forest fires.
- More severe cold snaps cause economic and environmental damage.
- Uneven distribution of precipitation, increasing frequency of heavy rains;
- Prolonged drought increases flood rate, flash floods, landslides; especially dangerous for Cao Bang because the majority of the area (about 75%) has a slope> 250.
- Increasing frequency of tropical depressions, floods, thunderstorms, cyclones, and lightning.
- Increased vulnerability to zoonotic, animal diseases, and plant diseases.
- Disasters related to meteorology, hydrology, and geology

Activities to respond to climate change in Cao Bang

Provincial People's Committee issued:

Action plan to respond to climate change in Cao Bang province for the period 2010-2015 with a vision to 2020.

- Decision No. 2542 / QD-UBND dated December 15, 2020 on the issuance of action plan to respond to climate change in Cao Bang province for the period 2021 - 2030, with a vision to 2050

The activities addressing climate change adaptation in the 2016-2020 period included:

- Focus on resource management; especially land, water, and mineral resources.

- Organize advocacy activities on proactively responding to climate change through conferences, training courses, competitions and seminars. Department of Natural Resources and Environment (DONRE) takes the lead in implementing the project: "Raising awareness and capacity to respond to climate change in Cao Bang province".
- Post all administrative procedures, legal documents on climate change response, as well as natural resource management and environmental protection [documents?] on the province's website.

The Center for Water Resources Conservation and Development has implemented 03 climate change adaptation projects in districts: Nguyen Binh, Bao Lac and Bao Lam.

- Strengthen inspection, detection, prevention, and handling of illegal mineral exploitation activities in the area;
- Investing in building Khuoi Khoan lake, Ngu Lao commune, Hoa An district, Cao Bang province in order to reserve and regulate water sources. The total investment capital of this project is VND 375 billion, from the capital of the Support Program to Respond to Climate Change (SP-RCC) and local counterpart funds.
- The province has developed a master plan on biodiversity conservation to 2020 with an orientation to 2030, with priority given to the protection and development of local rare genetic resources, specialty plants, and animals.

In the period of 2021-2025, Cao Bang plans to focus on:

- Assessment of changes in climate change; proactively formulating natural disaster prevention and reduction plans for highland areas, areas prone to landslides and flash floods, as well as areas vulnerable to natural disasters;
- Promote research and application of scientific and technological advances in response to climate change;
- Implement projects on response and mitigation of climate change impacts in the province; improve the efficiency of natural resource management and environmental protection in the province.
- Develop climate change response tasks for each sector to mitigate greenhouse gas emissions. The total cost of implementing action plans to respond to climate change in the province for the period 2021 - 2030 is VND 277.133 billion.

2. Summary of Data on Climate Change Investment in Cao Bang

2.1 Budget sources for climate change investment

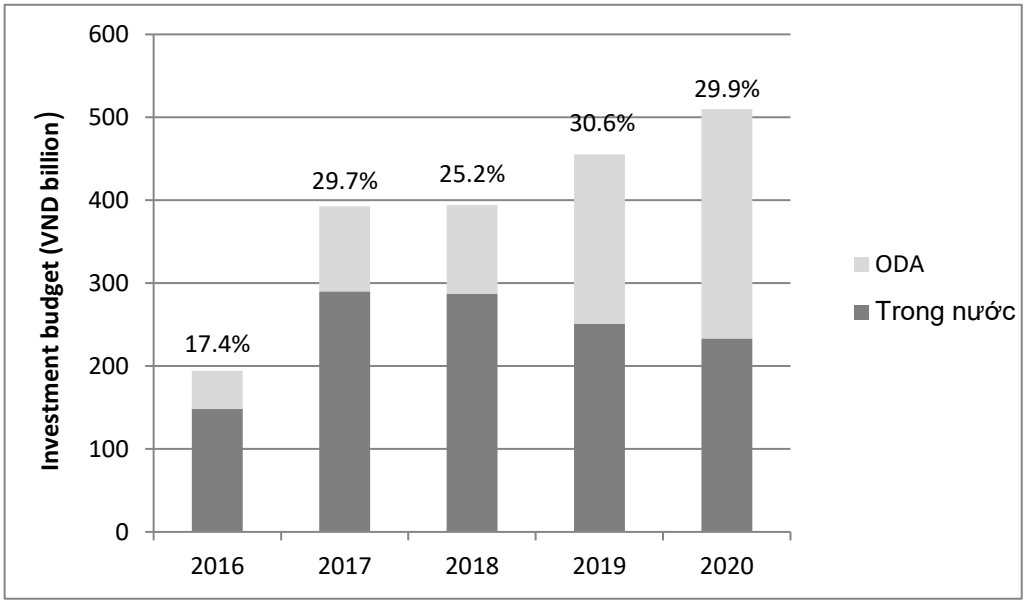


Figure 1: The total investment budget for climate change at Cao Bang *– the percentage that the climate change budget represents of the total Provincial development investment budget is shown as a % on the top of each bar.*

The mean annual climate change investment budget for 2016 – 2020 is VND 389 billion. The highest climate investment budget was in 2020 (VND 510 billion), whereas the lowest was in 2016 (VND 194 billion).

Domestic investment contributed 64.8% of the total climate budget 2016 – 2020 (242 VND billion per year), with ODA contributing the remaining 35.2% (147 VND billion per year). The proportion of ODA fluctuated between 24-54% in the 2016-2019 period. There was a significant increase in 2019 (45% from ODA) and in 2020 (54% from ODA).

For 2016 – 2020, the mean annual climate investment budget is 27% of the total investment budget for the province. In 2019, this proportion was higher, accounting for nearly 31% of the total investment expenditure of the province.

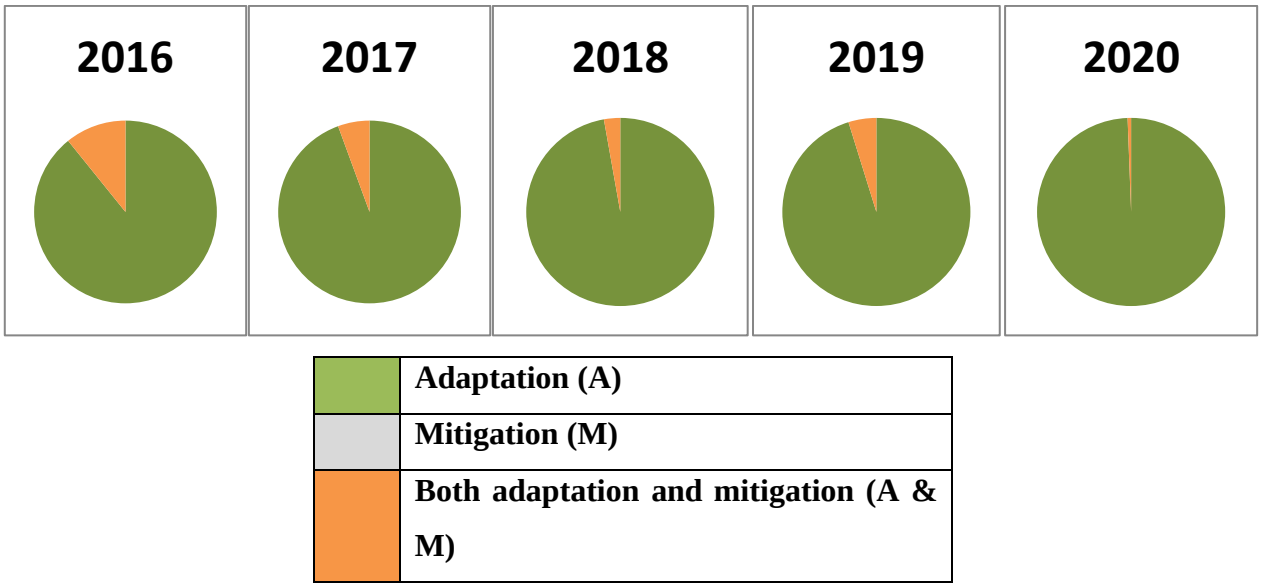
Table 1: Investment for climate change in Cao Bang by year from 2016 to 2020 and by capital source

In billion VND

Year	Domestic	ODA	domestic + ODA	% domestic	% ODA	Total Province Data	(ODA+domestic / total province domestic) x 100
2016	148.493	45.940	194.433	76.4	23.6	1119.554	17.4
2017	290.112	102.558	392.670	73.9	26.1	1321	29.7
2018	287.509	106.861	394.370	72.9	27.1	1567.465	25.2
2019	251.124	204.15	455.274	55.2	44.8	1488.258	30.6
2020	233.343	276.384	509.727	45.8	54.2	1705.084	29.9
Mean	242.1162	147.1786	389.2948	64.84	35.16	1440.272	26.56

2.2 Purpose of the investment budget for climate change

a) The "adaptation" or/and "mitigation" project type distribution:



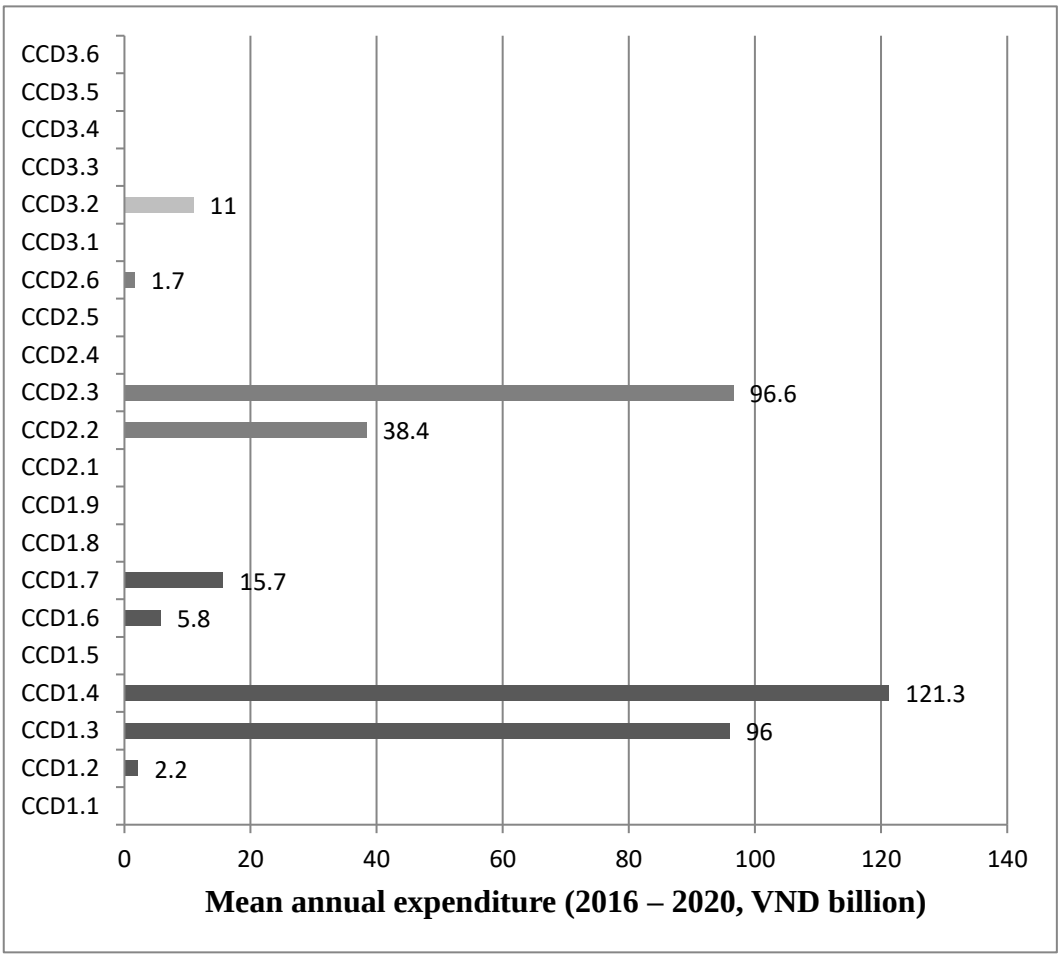
Total investment in climate change in the 2016-2020 period mostly addressed adaptation. In 2016, adaptation was 89.2% and in 2017, 94.4%. In the next three years, spending on adaptation accounted for over 95% of total investment spending on climate change.

The remaining projects are mixed adaptation and mitigation, specifically, forest protection and development, and capacity building for forest fire prevention and fighting in Cao Bang province. There are no projects entirely of mitigation nature.

Detailed investment data for climate change adaptation and mitigation

Unit: VNDb	2016		2017		2018		2019		2020	
A	173.448	89.2	367.873	94.4	383.48	97.2	433.556	95.2	506.591	99.4
M	0	0	0	0	0	0	0	0	0	0
A/M	20.984	10.8	21.687	5.6	10.89	2.8	21.717	4.8	3.135	0.6

b) Allocate investments in response to climate change (CCD) according to specific tasks (Average annual spending in the 2016-2020 period; Unit: billion dong)



The main targets of investment in climate change from 2016 - 2020 were in transportation (CCD2.3) accounting for 24.9 %, irrigation (CCD1.3) accounting for 24.7%, dykes and river embankments (CCD1.4) accounting for 31.2%, and enhanced resilience for rural and urban areas (CCD 2.2) accounting for 9.9% of the total budgetary expenditure.

Smaller investments have been made in forest development (CCD1.7) accounting for 4% and for agriculture, rural development and food security (CCD1.6) accounting for 1.5%, Economical and efficient use of energy (CCD3.2) accounts for 2.8%, and a small investment allocated for disaster risk reduction (CCD2.6) accounts for 0.4%.

Detailed investment in climate change by sector (for reference)

	count	%		count	%		count	%
CCD1.1	0	0	CCD1.8	0	0	CCD2.6	1.7	0.4
CCD1.2	2.2	0.6	CCD1.9	0	0	CCD3.1	0.0	0
CCD1.3	96.0	24.7	CCD2.1	0	0	CCD3.2	11.0	2.8
CCD1.4	121.3	31.2	CCD2.2	38.4	9.9	CCD3.3	0	0

CCD1.5	0	0.0	CCD2.3	96.6	24.9	CCD3.4	0	0
CCD1.6	5.8	1.5	CCD2.4	0	0	CCD3.5	0	0
CCD1.7	15.7	4.0	CCD2.5	0	0	CCD3.6	0	0

2.3 Budget expenditure from ODA

The five biggest ODA projects for climate change:

1. Embankment on the left bank of Hien River, City Cao Bang, Cao Bang province (2017, 2019, 2020, 38.2%)
2. Construction of Khuoi Kho lake, Ngu Lao commune, Hoa An district (2016-2019, 25.0%)
3. Business support for farmers (CSSP) in Cao Bang province (2019-2020, 9.1%)
4. Comprehensive development of basic infrastructure in Northeastern provinces: Ha Giang, Cao Bang, Bac Kan, Lang Son - Cao Bang subproject (2017-2020, 6.6%)
5. Urban Northern Mountainous Program - Cao Bang City (Phase 2) (2017-2020, 4.1%)

More than 60% of the ODA in the budget for climate change investment in the 2016-2020 period comes from two projects: Embankment on the left bank of Hien River, City Cao Bang, Cao Bang province and Construction of Khuoi Kho lake, Ngu Lao commune, Hoa An district. Both of these projects have been supported by donor funds to support the Targeted Program to Respond to Climate Change and Green Growth 2016 - 2020. The next three major ODA projects have been funded by the World Bank.

2.4 Policy and planning instruments

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

Green Growth Action Plan (draft) (projects 2016-2020):

<u>Agriculture, rural development, forestry</u>

1. Change rice varieties with high yield and quality
2. Apply economical watering and improved rice cultivation system
3. Apply biochar and microbiological fertilizers in rice cultivation

4. Using rice straw as compost for rice
5. Use rice straw as compost for corn
6. Apply biochar and microbiological fertilizer in maize cultivation
7. Using rice straw as compost for soybeans
8. Application of biochar in soybean cultivation
9. Using straw as compost Apply to sugarcane
10. Using biochar and microbiological fertilizer in sugarcane cultivation
11. To sustainably manage the existing natural protection forests and special-use forests, to prevent forest fire and fire
12. Scattered tree planting, selection cycle is 30 years
13. For forest enrichment and management and protection of existing natural production forests, the harvest cycle is selected for 20 years.

Energy

1. Production of non-fired bricks
2. Improve the efficiency of an existing electric motor, install a new high-efficiency motor with a frequency converter
3. Internal management of the enterprise (arrange to optimize production process and use raw materials, fuel with the highest efficiency)
4. Construction of an energy-efficient building interior management system including electrical equipment (lighting, entertainment)
5. Save electricity for air-conditioning systems
6. Using biofuel instead of gasoline
7. Changing and improving the efficiency of transporting passengers and goods
8. High-efficiency household electrical appliances including refrigerators, air conditioners, washing machines, TVs, pumps etc.
9. Use solar water heaters in households in towns, towns and cities
10. Using innovative high efficiency stoves (including coal, biomass, biogas stoves)
11. Improve energy efficiency in irrigation, farming, and harvesting

Green production and living

1. Managing, monitoring, operating and completing the wastewater treatment system in order to separate the wastewater and drainage system of Cao Bang city.
2. Complete the urban wastewater collection and treatment system towards separating it from the drainage system of Nuoc Hai town, Hoa An district.
3. Complete the wastewater treatment system towards separating the wastewater and drainage system in Cao Bang city, Thanh Nhat town, Ha Lang district.

4. To build wastewater treatment and drainage systems in the town centers of the remaining districts
5. Upgrading the hospital waste collection and treatment system
6. Treating and classifying garbage at the garbage source for the district landfill
7. Apply modern waste treatment technology, leachate to Cao Bang city landfill
8. Waste and domestic waste recycling facilities (compost, electrical energy, gas, plastic, ...)
9. To build domestic water supply systems for all districts
10. Planting and taking care of plants on roads in Cao Bang city and districts
11. Urban greenery planting (additional planting of main axes in urban areas and central flower gardens)
12. Building and maintaining an environmental treatment system for a number of establishments that exploit and process agricultural, forestry and food products that are causing serious environmental pollution
13. Clean development mechanism for a number of industrial establishments causing disproportionate environmental pollution
14. Strengthen supervision and treat pollution in industrial parks and industrial complexes
15. Planning on restoration of Tinh Tuc town ecological landscape (after the mining is closed)
16. Upgrading and investing in new facilities for vehicle maintenance and repair on national highways going to border gates
17. Watershed planting and protection project
18. Building and completing the center for environmental analysis
19. Strengthen education and communication, raise environmental awareness across the province, encourage false accusations in environmental protection
20. Strengthening the management capacity of border resources associated with the protection of territorial sovereignty and national security for forest rangers, border guards and local governments of border communes
21. Organizing training on cleaner production for businesses in the province (training time 3 days)
22. Develop and implement a communication plan to raise awareness on cleaner production in industry
23. Building a model to forecast overlapping soil erosion and landslide
24. Building a natural disaster forecast and monitoring network
25. Disseminate the 3R (reduce, reuse, recycle) movement among residential communities
26. Organize communication activities to raise awareness of green lifestyle social groups

PIPA (reduction of GHG emissions):

1. Constructing and proposing GHG emission reduction and green growth actions suitable for local conditions in industry, transportation, construction, as well as agriculture and rural development.
2. Carry out other GHG emission reduction activities appropriate to local conditions

PIPA (Adaptation to climate change):

1. Update contributions on climate change adaptation in NDC under the guidance of Ministries, Central Branches
2. Development of National Adaptation Plan (NAP) under the guidance of Ministries, Central Branches
3. Review the available data and information on climate change adaptation, loss and damage; propose additional information, research, and methods of managing and sharing data to facilitate the development and updating of national reports on climate change adaptation.
4. Assessment of risk and vulnerability due to climate change, identification of need for adaptation and the need to address issues related to loss and damage
5. Implement the Target Program on climate change and green growth.
6. Implement the program on economic development of sustainable fisheries.
7. Implement the Targeted Program for Sustainable Forestry Development.
8. Implement the target program on agricultural economic restructuring, natural disaster prevention and reduction, and stabilization of life
9. Carry out other activities on climate change adaptation to increase resilience, protect lives and livelihoods of the people, creating conditions for a greater contribution to GHG emission reduction.
10. Construction and implementation of a program for training cadres and officers to meet the needs of implementing the Paris Agreement.
11. Disseminate and raise local awareness of the implementation of the Paris Agreement.