CLIMATE CHANGE EXPENDITURE AND INVESTMENT REVIEW – PERIOD 2016-2020 - HOA BINH PROVINCE

1. Climate change in Hoa Binh

General introduction

Hoa Binh is a mountainous province in the western gateway of Hanoi capital, with an area of 4,598.4 km^2. Containing an approximate population of 854,131, ethnic minorities account for over 74.14%. In the 2016-2020 period, the province averaged a fairly growth rate of7.59% annually. As a result, the total gross regional domestic product was 1.65 times higher in 2020 compared to 2015. The GRDP per capita in 2020 was about 63.8 million VND, 1.6 times higher than that of 2015. The average GRDP per capita is higher than the Northern Midlands and mountainous areas and equal to about 92% of GDP per capita of the country.

The impact of climate change on Hoa Binh

The impacts of climate change have affected natural resources and environment, agriculture and rural development, industry, construction, transportation, trade in services, community health, livelihoods, and exacerbated poverty. In districts and cities, visible impacts such as: increase in temperature, increase in drought and increase in flash floods and landslides can be generally assessed as:

Districts and cities	Manifestations of climate change	Impacts of climate change
Hòa Bình city	-Increasing intensity and frequency of storms, tropical depression, -Increasing frequency of flash floods -Water resource decline in dry season; -Unusual fluctuations in rainy season	-Affects public health; - Damage to homes, public infrastructure; -Increased power shortage in the dry season; -Effects on urban land use planning
Lương Sơn, Kỳ Sơn	- Increase heat and heat - Increase the intensity and frequency of thunderstorms and tornadoes - Increased inundation; - Increased frequency of flash floods	- Damage to homes, public infrastructure; - Destroying network seasons, reduced crop yields; - Destroyed irrigation works; - Reduced seafood productivity
Cao Phong	- Increased frequency of flash floods, landslides; - Increased intensity and frequency of heavy rain - Increased soil erosion	- Reduced area, reduce the nutrition of cultivated land; - Reducing productivity of plants and animals; - Damage to homes
Đà Bắc, Mai Châu	- Increased frequency of flash floods, landslides; - Increased intensity and frequency	- Destroyed construction works, transportation works - Reduced agricultural productivity,

Districts and cities	Manifestations of climate change	Impacts of climate change
	of heavy rain - Increased background temperature; droughts often occur;	aquatic animals; -Forest fire, biodiversity loss;
Tân Lạc, Lạc Sơn và Yên Thủy	- Increase in temperature, increase drought in the dry season; - Unusual fluctuations in the rainy season; - Increased frequency of thunderstorms and tornadoes; - Increased frequency of flash floods;	- Reduced water storage capacity - Reduce crop yield - Increased damage to infrastructure - Increased likelihood of forest fires, reduce biodiversity
Kim Bôi, Lạc Thủy	- Increased intensity and frequency of storms, tropical pressure, cyclones - Increased intensity and frequency of heavy rains, floods and flash floods in the rainy season; - Increased frequency of landslides, river banks; - Rising temperatures;	- Increased damage to infrastructure, construction works; - Affect irrigation development; - Loss of cultivated land, reduced yield of crops, animals and aquatic products. -Change in climate regimes, biodiversity loss.

Activities to respond to climate change in Hoa Binh

- Decision No. 530 / QD-UBND dated 26/4/2012 of the People's Committee of Hoa Binh Province on Construction Action Plan to Respond to Climate Change in Hoa Binh Province.

- Decision No. 104 / QD-UBND dated January 19, 2016 promulgating the plan to implement the national strategy for environmental protection to 2020, vision to 2030 in Hoa Binh province;

- Decision No. 2270 / QD-UBND dated September 6, 2016 approving the master plan on biodiversity conservation in Hoa Binh province up to 2020, orientation to 2030;

- Decision No. 1803 / QD-UBND dated 20 September 2017 approving the Action Plan “Reducing greenhouse gas emissions through efforts to limit deforestation and forest degradation, and sustainable management of forest resources. Conservation and enhancement of forest carbon stocks (REDD +)” in Hoa Binh province for the period 2017-2020, with a vision to 2030.

- Plan No. 152 / KH-UBND dated 20/11/2017 of the People's Committee of Hoa Binh Province Implementing the assigned tasks in Decision No. 2053 / QD-TTg dated June 28, 2016 of the Prime Minister issuing the Plan to implement the Paris Agreement on climate change in Hoa Binh province;

- Decision No. 2666 / QD-UBND November 26, 2019 approving the update of the Action Plan to respond to climate change in Hoa Binh province;

- Decision No. 675 / QD-UBND dated 24/4/2017 of the Provincial People's Committee on strengthening the Steering Committee to respond to climate change in Hoa Binh province and

- Decision No. 46 / QD-UBND dated 15/5/2017 of the Steering Committee to Respond to Climate Change in Hoa Binh Province on promulgating the Operation Regulation of the Steering Committee to Respond to Climate Change in Hoa province.

The main activities are:

- Manage the exploitation of minerals and land in an efficient, economical, and sustainable manner, and respond to climate change.

- To develop agriculture in the direction of concentrated commodity production, closely linked with the processing industry, tourism, consumption markets, environmental and ecological protection, and adaptation to climate change.

- Pay attention to food security and water resources, restructuring crop and ruminant management in accordance with climate change conditions.

- In the 2016 - 2020 period, to implement 17 forest protection and development projects and 01 forest tree seed project under the Sustainable Forestry Development Target Program with the total funds implemented (as of 2019) over 114 VND billion.

- Strengthening international cooperation and integration activities in response to climate change.

- To carry out the monitoring and assessment of the impacts of climate change on natural conditions, people, and on socio-economic development;

- Raise awareness among the community about climate change, proactively respond to climate change; accelerate the implementation of projects against climate change in the province.

- Organizing launch ceremony in response to the annual environment day; building a website on climate change in Hoa Binh province.

2. Summary of Data on Climate Change Investment in Hoa Binh

2.1 Budget sources for climate change investment

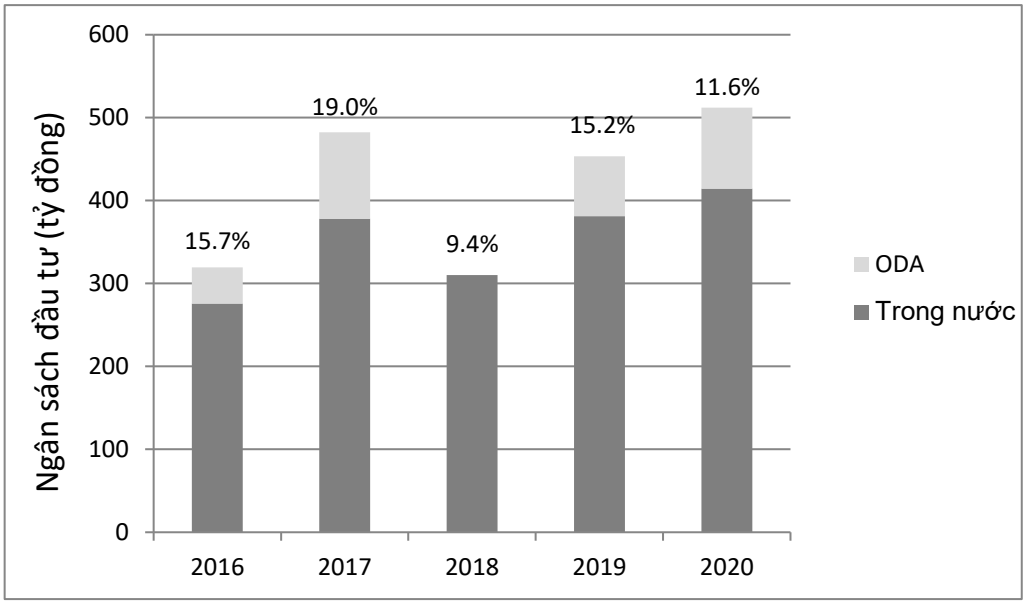


*Figure 1**: The total investment budget for climate change at Hoa Binh** – the percentage that the climate change budget represents of the total Provincial development investment budget is shown as a % on the top of each bar.*

The mean annual climate change investment budget for 2016 – 2020 was 416 VND billion. The highest climate investment budget was in 2020 (512 VND billion), whereas the lowest was in 2018 (310 VND billion).

Domestic investment contributed to 86% of the total climate budget 2016 – 2020 (352 VND billion), with ODA contributing the remaining 14% (64 VND billion). The proportion of ODA is not even between years. In 2017, ODA accounted for 22% of the total, but in 2018 there was no ODA. In 2020, ODA accounted for 19% of total expenditure for climate change of the province.

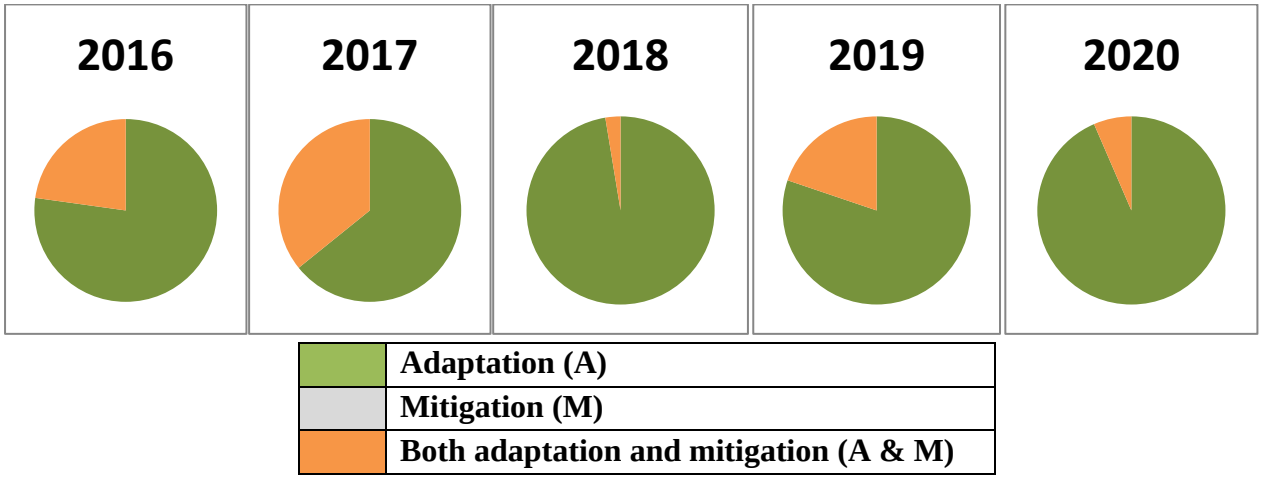
In most years analysed, the climate investment budget represents between 9 – 16% of the total investment budget of the Province. However, in 2017, the investment budget for the climate change accounted for 19% of the total investment budget.

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

Year	Domestic	ODA	domestic + ODA	% domestic	% ODA	Total Province Data	(ODA+domestic / total province domestic) x 100
2016	275,848	43,500	319,348	86.4	13.6	2033,325	15.7
2017	378,08	104,400	482,480	78.4	21.6	2542,307	19.0
2018	310,24	0,000	310,240	100.0	0.0	3283,072	9.4
2019	381,272	72,100	453,372	84.1	15.9	2980,334	15.2
2020	414,594	97,500	512,094	81.0	19.0	4418,805	11.6
Mean	352,0068	63,5	415,5068	85.98	14.02	3051,569	14.18

2.2 Purpose of the investment budget for climate change

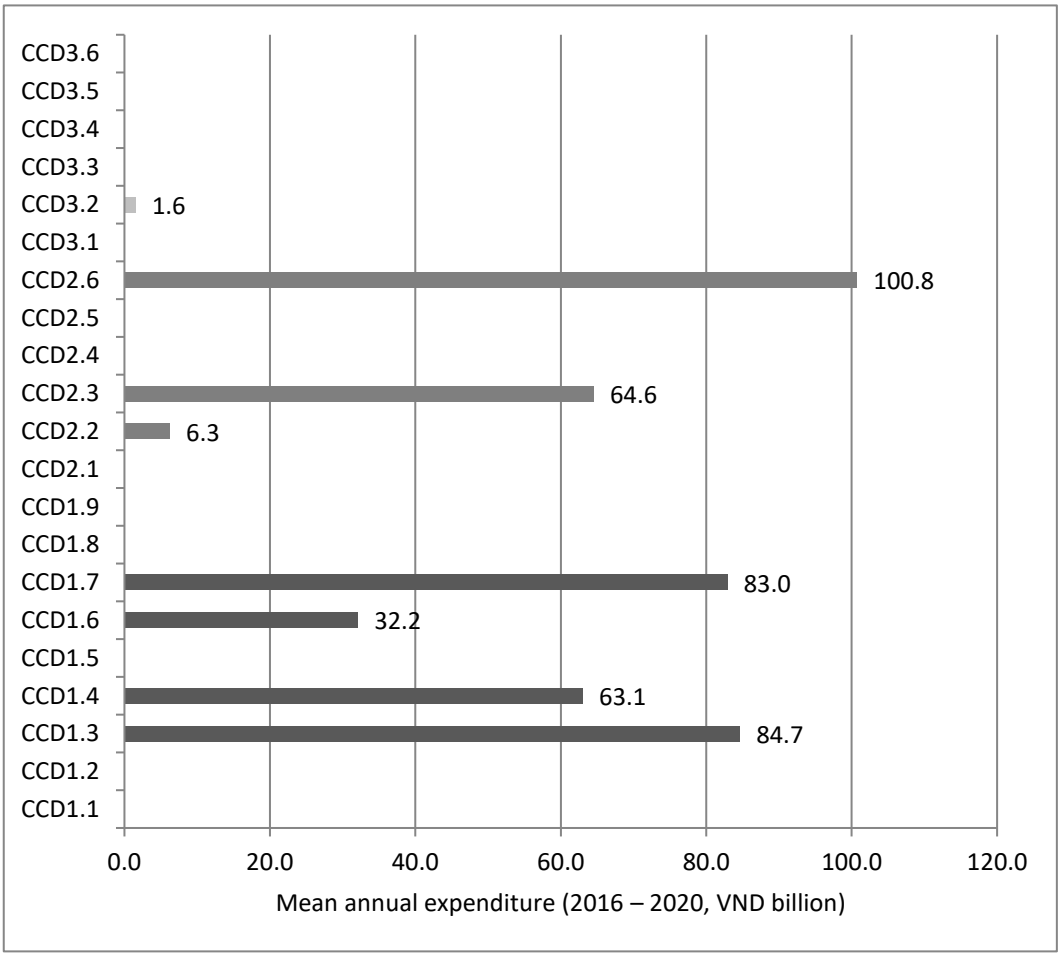
a) The "adaptation" or/and "mitigation" project type distribution:



Investment spending on climate change has tended towards adaptation, increasing gradually over the years. In 2016, spending on adaptation accounted for 77%,64% in 2017, and in the remaining years (2018-2020) accounted for over 80 % of total spending on climate change.
Some of the budget has been spent on projects that are both adaptation and mitigation, such as forest protection and development. However, the allocation to these mixed adaptation and mitigation projects seems to have declined 2016 to 2020. There is no project entirely directed towards mitigation.

Unit: VNDb	2016		2017		2018		2019		2020	
A	246,615	77.2	376,076	64.2	302,325	97.4	362,211	80.2	478,912	93.5
M	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
A/M	72,732	22.8	209,292	35.8	7,914	2.6	89,161	19.8	33,18	6.5

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 for climate change in the period 2016 - 2020were in strengthening disaster risk reduction (CCD2.6) accounting for 23.1%; forest development (CCD1.7) accounting for 19%, irrigation (CCD1. 3) accounting for 16.4%, transportation (CCD2.3) accounting for 14.8%, dyke and river embankment (CCD1.4) accounted for 14.5% and agriculture, rural development and food security (CCD1.6) accounting for 7.4%.

Smaller amount of investments have been made in rural and urban areas (CCD2.2) accounting for 1.4%. Little investment was allocated towards resilience enhancement for efficient use of energy (CCD3.2), accounting for 0.4%.

Detailed investment in climate change by sector (for reference)

CCD1.1	0	0.0	CCD1.8	0	0.0	CCD2.6	100,8	23.1
CCD1.2	0	0.0	CCD1.9	0	0.0	CCD3.1	0	0.0
CCD1.3	84,7	19.4	CCD2.1	0	0.0	CCD3.2	1,6	0.4
CCD1.4	63,1	14.5	CCD2.2	6,3	1.4	CCD3.3	0	0.0
CCD1.5	0	0.0	CCD2.3	64,6	14.8	CCD3.4	0	0.0
CCD1.6	32,2	7.4	CCD2.4	0	0.0	CCD3.5	0	0.0
CCD1.7	83,0	19.0	CCD2.5	0	0.0	CCD3.6	0	0.0

2.3 Budget expenditure from ODA

The four biggest ODA projects for climate change:
1. Project of planting and protecting watershed protection forests in combination with building infrastructure for flood control, landslides, and protection of residents in Lac Son district (2016-2017, 46.6%)
2. Repairing and improving dam safety (WB8) (2020, 24.7%)
3. The project of planting, protecting and restoring protective forests on the Boi river's watershed and upgrading dykes to prevent floods of Boi river in combination with flood roads (section of Chi Ne bridge, Khoan Du commune, Lac Thuy district to Xich commune Tho, Nho Quan district, Ninh Binh province), Hoa Binh province (2019, 22.7%)
4. The Project of Urban Northern Mountainous Area - Hoa Binh City (2020, 6.0%)

In the 2016-2020 period, Hoa Binh has 4 ODA projects for climate change, of which 71.3% of ODA comes from two projects: Project of planting and protecting watershed protection forests in combination with building infrastructure for flood control, landslides, and protection of residents in Lac Son district supported by the Targeted Program to Respond to Climate Change and Green Growth and the Repairing and improving dam safety project financed by the WB.

2.4 Policy and planning instruments

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

Achievements of the NTP-RCC until 2015:

- Established steering committee for the implementation of the National Target Program Action Plan & issued regulations of the steering committee; issued the Plan to implement the National Target Program and list of projects; provincial Decision on implementing Party Resolution 24-NQ/TW.
- Water Resources: assessed the current situation and developed protection plan in Nhue Day river basin; repaired and upgraded irrigation systems water reservoirs; raised public awareness about the impacts of climate change and rational use of water.
- Biodiversity: implement the Biodiversity Action Plan 2011-2015; protected forests; conserved local species; built a legal corridor on forest protection.
- Agriculture and fisheries: applied technology adapted to climate change; raised farmers' awareness on responding to climate change; reviewed aquaculture plans and developed an aquatic insurance fund to prevent unexpected risks caused by natural disasters and climate change.
- Energy industry: assessed impact of climate change on the health and working conditions of workers; upgrade factories to minimize cooling costs; improved energy efficiency in production, distribution, and transmission of energy, as well as energy use.
- Transportation: integrated climate change into provincial transportation plans; assessed impacts of climate change on transportation systems; raising foundations of traffic works; developed public transport.
- Public health: built epidemic warning systems in the context of climate change; models for community health care and green and clean residential areas; developed action plans for health control in epidemic risk areas; strengthened capacity of health facilities.

Climate Change Action Plan (projects for 2021-2030, whereas some started earlier):

1. Develop a management information system related to vulnerability and reliability, local adaptive data to improve climate change in the province has the capacity to forecast and warn the application of GIS technology.
2. Building a database and modern hydro-meteorologic monitoring network to assess climate change effects in Hoa Binh province.
3. Planning, monitoring and operating regulations on agricultural production in the context of climate change
4. Building a system of monitoring and warning for flood, flash flood and landslide for mountainous districts
5. Strengthen investigation and assessment of water resources, deploy water resource monitoring stations
6. Increase investment in irrigation systems for agriculture production, and good drainage.
7. Implement programs on reducing greenhouse gas emissions including limiting deforestation and forest degradation, in combination with diversifying local livelihoods.
8. Maintain and upgrade the dyke system to ensure the safety of socio-economic activities, people.
9. GHG inventories and proposals to manage industrial greenhouse gas emissions
10. Climate change Vulnerability Assessment for the agriculture sector.
11. Assess the effects of climate change on cultural activities and tourism
12. Pilot implementation of health solutions in response to climate change.
13. Assess the vulnerability of the population of Hoa Binh province to the impacts of climate change
14. Raising awareness and understanding for students about climate change through extracurricular education and integrating climate change in education at all levels.
15. Review and propose mechanisms and policies to encourage research and technology transfer on climate change, and strengthen cooperation for technology change.
16. Construction of re-settlement areas for people to avoid frequent floods and landslides
17. Implement industrial greenhouse gas emission reduction.

18. Update risk assessment of landslides and rocks-landslides.
19. Formulation of master plan under the Planning Law (2017) that integrates climate change factors into spatial planning, socio-economic development.
20. Train propaganda staff on climate change.
21. Build and replicate models of renewable energy.
22. Researching and implementing environmentally friendly waste treatment technologies.

PIPA (reduction of GHG emissions):

1. Formulate and implement Nationally Appropriate Mitigation Actions (NAMAs) for industry, transport, construction, and agriculture & rural development sectors: coordinate contributions with national sectors
2. Implement GHG emission reduction activities: strengthen, use science & technology in construction; transport; waste management; forestry; agricultural production

PIPA (Adaptation to climate change):

1. Contribute, update on climate change adaptation, towards updating the NDC: update, issue action plans, mainstream climate change in Hoa Binh social economic planning
2. Formulate the National Adaptation Plan: contribute
3. Review information, data on climate change adaptation, loss & damage; propose additional research, information collection and sharing for issuing reports, contributions to the national level on responding to climate change
4. Implement target programme on responding to climate change and green growth
5. Implement target programme on sustainable fisheries development
6. Implement target programme on sustainable forest development
7. Implement target programme on agricultural transformation and responding to and mitigating of natural disasters
8. Protect food security through sustainable land management, agriculture and livestock keeping, including development of adapted and innovative seeds and breeds
9. Support poor people in coping with the effects of climate change, and develop financial and agriculture insurance mechanism to reduce risks
10. Water management and natural disaster prevention and mitigation, including cyclones and erosion risks
11. Build, upgrade drainage in city and towns, tourist and industrial areas in the context of climate change
12. Propaganda, awareness raising, capacity building on the Paris Agreement and climate change for officials, organisations and citizens
13. Mainstream climate change and green growth in policies, sector plans, programmes