



hectares depend on the water supply from both Thu Bon River and Vu Gia River and are threatened by saline water intrusion in the dry season from January to August. Salinity has affected 3,500 hectares of irrigation coverage of Xuyen Dong and Tu Cau pumping stations in Duy Xuyen district and Dien Ban Town, whereas Dien Ban district must combat drought for 10,000 hectares of cultivated areas every year. The cost of building concrete salinity intrusion control dams in the Thu Bon River is very high and is unfunded so far.

### **Activities to respond to climate change in Quang Nam**

Quang Nam province has actively undertaken different remedies for adaptation to and mitigation of climate change impacts (see also section 4 below). The province has integrated climate change factors into the provincial socio-economic development master plans and annual plans, which has led to certain positive results.

In addition, capacity strengthening and human resource development, intensive communication to raise public awareness on the issue has been emphasized. Effective implementation of industrialized and mass aquaculture (brackish water, fresh water) farming has been facilitated. Aquaculture farming areas are well connected to development of breed and feed producers and food processing factories for exports. The province has also issued various managerial regulations on fishing ship building and repair facilities to control ship quality. This is considered an action to ensure vessel safety.

At the same time, reliability of weather forecast information, anticipation of fishing grounds, flood and storm prevention and coordination in rescue efforts has been strengthened to protect fishermen and fishing vehicles in their offshore operation.

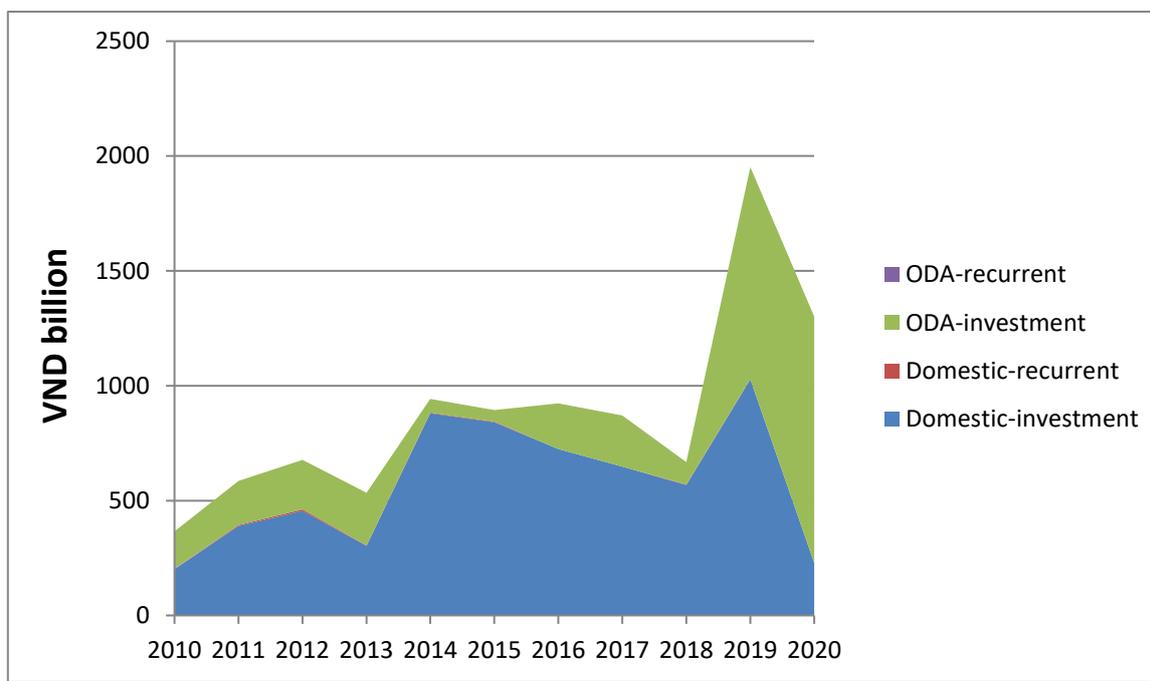
The province has been actively seeking for domestic and international funding sources for investment projects that generate socio-economic benefits from climate change adaptation and greenhouse gas emission reduction.

Quang Nam province is addressing the need to develop and issue incentives for development of clean production models using environmentally friendly technologies, especially in industry, seafood processing, tourism and urban activities in the coastal areas. Those efforts aim to reduce greenhouse gas emissions, environmental pollution and wasteful exploitation of natural resources. Carrying out master planning of residential areas, industrial zones, and tourist resorts to enhance their flooding resistance capacity is emphasized. Construction of water reservoirs, strengthening of reforestation activity, especially in reservation of watershed forests to slow down water flowing velocity in rainy season, increase water flows and groundwater endowment for drought prevention in dry season are crucial efforts.

## **2. Review of climate public investment and recurrent expenditure in Quang Nam**

### **2.1. Sources of total climate change budget**

#### ***a) Total climate budget 2010 – 2020***



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

**Table 1: Data on climate change budget expenditure in Quang Nam by year (2010 to 2020)**

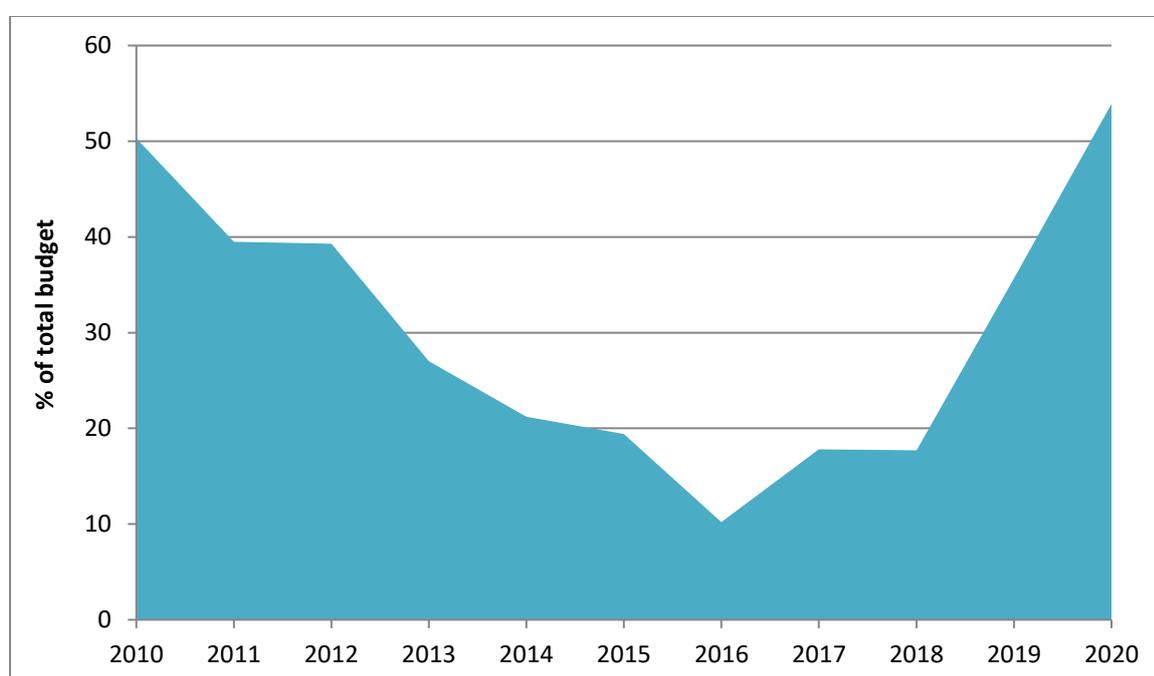
*Unit: VND billion*

	Domestic investment	ODA investment	Domestic recurrent	ODA recurrent	Total
2010	202.347	161.793	1.489	0	365.63
2011	389.192	192.469	3.905	0	585.57
2012	454.573	214.665	7.824	0	677.06
2013	303.060	229.163	2.065	0	534.29
2014	879.653	60.816	2.971	0	943.44
2015	841.863	50.031	2.129	0	894.02
2016	724.565	198.654	0	0	923.22
2017	647.483	222.470	0	0	869.95
2018	567.720	97.732	1.908	0	667.36
2019	1,027.752	922.758	1.249	0	1,951.76
2020	228.330	1,072.725	0	0	1,301.06

- The average total climate budget expenditure, including investment and recurrent expenditures from 2010 to 2020 in Quang Nam province is about VND 883 billion/year, while the value of this budget expenditure for the period 2016-2020 is about VND 1,142 billion/year or 30 percent higher than the average level of the entire period, the highest is in 2019 (VND 1,952 billion) and the lowest was in 2010 (about VND 366 billion).
- In Quang Nam, climate change budget expenditure is mainly focused on investment spending, at VND 9,690 billion for the entire period, while the level of recurrent expenditure is negligible (only about VND 24 billion in the same period). In other words, almost 100% total budget expenditure on climate change is investment spending.

- In the period 2010-2020, the average annual domestic investment expenditure on climate change is VND 6,267 billion, accounting for 65% of the total investment expenditure, whereas the ODA capital contribution is about VND 3,423 billion, accounting for 35%. The proportion of investments from ODA sources often changes unevenly, ranging from only VND 50 billion of ODA investment in 2015 to 20 times higher (or VND 1,072 billion) in 2020.
- Recurrent expenditures related to climate change vary substantially across years but remain a small component of the total climate budget (mostly <1%, up to a maximum of 1.2% in 2012). Recurrent expenditure for climate change has dropped off in recent year. On average annual 2010-2015 recurrent expenditures were 6.5 times higher than 2016-2020; no recurrent expenditures were registered in 2016, 2017 and 2020. The source of recurrent expenditure is 100% domestically, since 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 11-year value chain, the proportion of budget expenditure on climate change to the total expenditure of the province, the average value for the period 2010-2020 is 30.2%. This ratio fluctuates over years depending on the rate of disbursement, the start or end of an investment project or expenditure program, etc. Moreover, this ratio has varied significantly from about 10% in 2016 to almost 54% in 2020. It is important to note that the data on total provincial budget here may not present the full provincial budget since the total recurrent budget includes only budget for some specific types of public services that have the closest relevance to climate change expenditures.

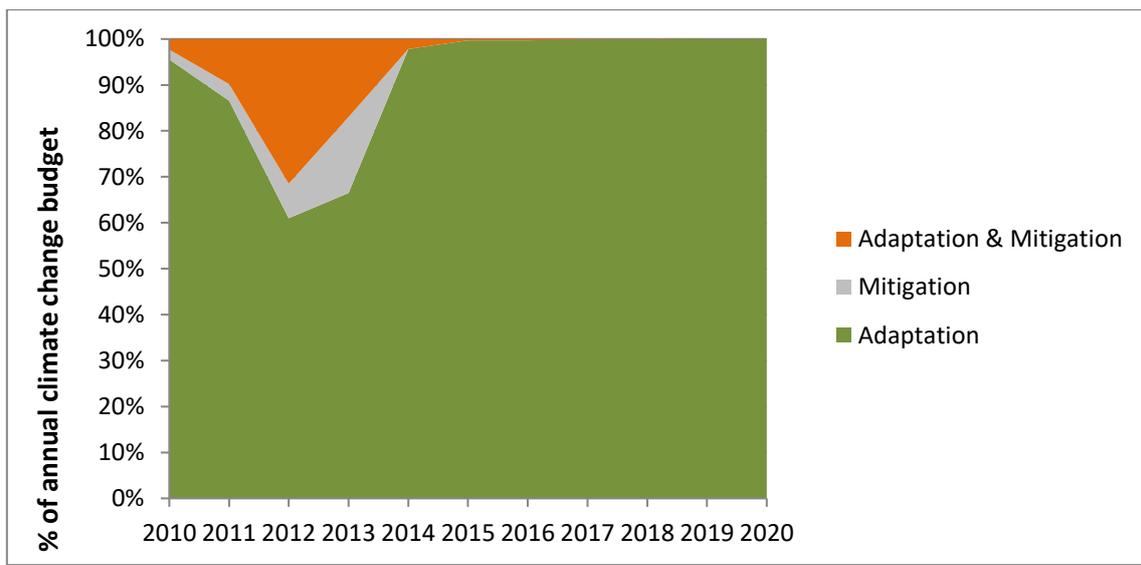
**Table 2: Share of CC expenditure on total provincial budget expenditure**

	Total CC budget	Total Provincial Budget	% of total budget
2010	365.629	727.017	50.3
2011	585.566	1,482.021	39.5
2012	677.062	1,722.544	39.3

2013	534.288	1,979.864	27.0
2014	943.44	4,450.227	21.2
2015	894.023	4,607.562	19.4
2016	923.219	9,057.789	10.2
2017	869.953	4,888.829	17.8
2018	667.36	3,778.866	17.7
2019	1,951.759	5,465.376	35.7
2020	1,301.055	2,415.976	53.9

## 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 + mitigation)**

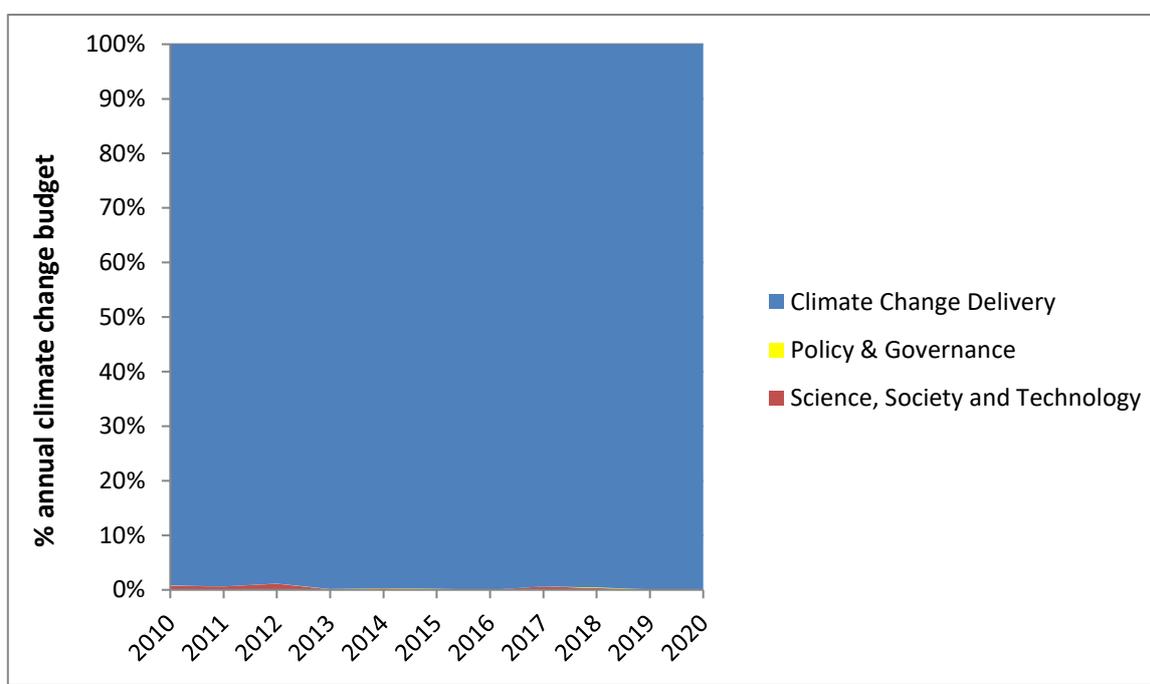
- In the entire period 2010-2020, climate budget spending on adaptation accounts for 92% of the total climate budget, the field of mitigation accounts for a modest proportion of about 2.7%, and the combined fields of adaptation and mitigation for about 5.8%.
- The proportion of budget expenditure related to climate change adaptation in relation to the total climate budget increases from 84.5% in the 2010-2015 period, to almost 100% in 2016-2020 period. In 2019 and 2020, 100% of climate expenditures are on adaptation.
- Mitigation records its largest share of 16.5% of the total climate change budget in 2013, while expenditure in the mixed field of mitigation and adaptation reaches its highest share of 31.5% one year earlier. There are few investment projects in the mixed field in 2017-2018 as exemplified by tree planting in urban areas, but they have since ceased.
- As a coastal province in the Central region, Quang Nam is very sensitive to climate change. Accordingly, most of its public investment portfolio is multipurposed, in which flood prevention, land erosion mitigation, and disaster relief is routinely emphasized. By contrast, the province's recurrent budget on response to climate change is spent to a limited number of activities, including awareness raising, formulation of relevant master plans, and/or participation in international cooperation projects in the field of environmental protection.

**Table 3: Expenditure decomposition into Adaptation, Mitigation and Mix**

	Adaptation		Mitigation		Adaptation & Mitigation	
	Count	%	Count	%	Count	%
2010	347.862	95.5	8.067	2.2	8.211	2.3
2011	507.296	86.6	20.862	3.6	57.408	9.8
2012	413.074	61.0	50.559	7.5	213.413	31.5
2013	355.602	66.5	88.127	16.5	91.081	17.0
2014	923.314	97.8	0	0	20.828	2.2
2015	891.173	99.7	0	0	2.851	0.3
2016	920.743	99.7	0	0	2.475	0.3
2017	869.497	99.9	0	0	0.455	0.1
2018	666.503	99.9	0	0	0.832	0.1
2019	1951.885	100	0	0	0	0
2020	1305.405	100	0	0	0	0

### 2.3. Allocation of total climate budget to climate change themes

#### a) 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)

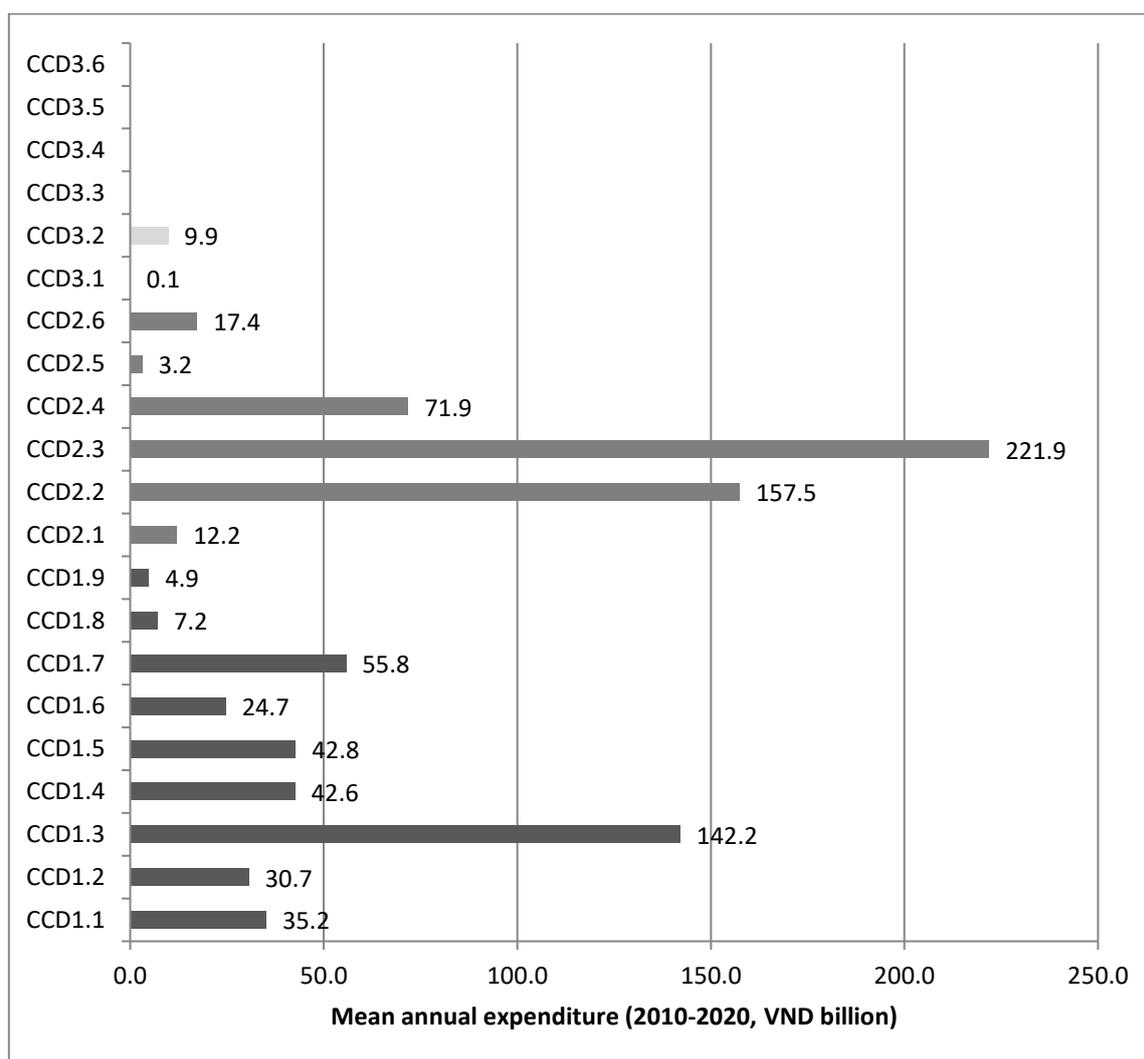
- Expenditures on climate change are classified as investment and recurrent expenditures, in the period 2010-2020. The former is mainly focusing on climate change delivery (CCD) while the latter is mostly for Science, Society and Technology (ST) and very little on Policy & governance (PG). Expenditure on ST and PG in the period 2010-2020 is about VND 15 billion, accounting for almost negligible share (0.31%) of total public expenditures on climate changes.
- Recurrent expenditure on climate change was estimated about VND 23.5 billion for the entire 2010-2020 period or VND 2.1 billion per year, of which spending for ST and PG has accounted for 86% and 14% respectively. Key activities in ST are to collect climate related data collection and raise

community awareness on response to climate change, while that in PG focuses on formulating various master plans and action plans to respond to different dimensions of climate change and operation of the Office for Climate Change Response.

**Table 4: Expenditure decomposition into ST, PG and CCD**

	ST		PG		CCD	
	Count	%	Count	%	Count	%
2010	2.656	0.73	0.172	0.05	361.311	99.22
2011	3.74	0.64	0.008	0.00	581.818	99.36
2012	7.558	1.12	0.161	0.02	669.328	98.86
2013	0.458	0.09	0.36	0.07	533.992	99.85
2014	2.704	0.29	0.267	0.03	941.17	99.69
2015	0.763	0.09	1.366	0.15	891.894	99.76
2016	0	0	0	0	923.219	100
2017	5.481	0.63	0	0	864.472	99.37
2018	2.143	0.32	1.007	0.15	664.185	99.53
2019	0.537	0.03	0.837	0.04	1950.51	99.93
2020	0	0	0	0	1305.405	100

*b) 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)**

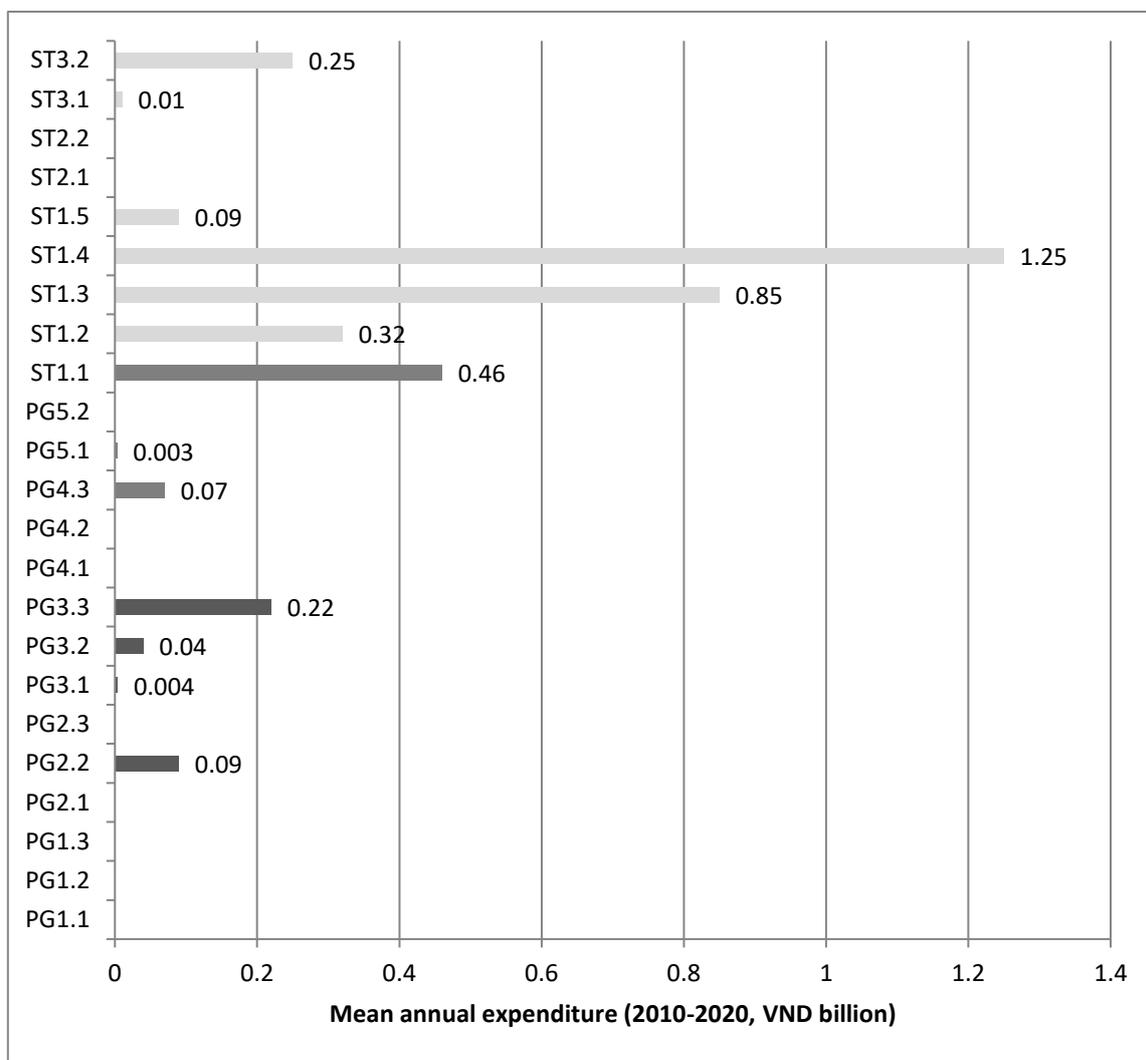
	count	%		count	%		count	%
CCD1.1	35.2	4.00	CCD1.8	7.2	0.82	CCD2.6	17.4	1.97
CCD1.2	30.7	3.49	CCD1.9	4.9	0.56	CCD3.1	0.1	0.01
CCD1.3	142.2	16.15	CCD2.1	12.2	1.38	CCD3.2	9.9	1.13
CCD1.4	42.6	4.84	CCD2.2	157.5	17.89	CCD3.3	0	0.00
CCD1.5	42.8	4.86	CCD2.3	221.9	25.21	CCD3.4	0	0.00
CCD1.6	24.7	2.81	CCD2.4	71.9	8.17	CCD3.5	0	0.00
CCD1.7	55.8	6.34	CCD2.5	3.2	0.36	CCD3.6	0	0.00

In the field of investment projects to respond to climate change locally in the last 11 years, 05 topics have been absorbed in average VND 649 billion per year, accounting for almost 73.8% of total investment climate change, including:

- CCD 2.3 (Transport; investment of VND 221.9 billion/year, accounting for 25%),
- CCD 2.2 (Residential and city area resilience; investment of VND 157.5 billion/year; accounting for 18%),
- CCD 1.3 (Irrigation; investment value of VND 142.2 billion/year, accounting for 16%),
- CCD 2.4 (Waste management and treatment; investment of VND 71.9 billion/year, accounting for 8%), and
- CCD 1.7 (Forest development; investment of VND 55.8 billion/year; accounting for 6%).

The next five investment areas that absorbed significant share of investment expenditures on climate change are as follows: Water quality and supply (CCD 1.5), River dyke and embankments (CCD 1.4), Coastal protection and coastal dykes (CCD 1.1), Saline intrusion (CCD 1.2), and Strengthening disaster risk reduction (CCD 2.6) with total investment of all five sectors is about VND 168.7 billion/year or 19% of the total.

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



**Figure 5: 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 1.4 (Survey and assessment on CC impacts; investment value of VND 1.14 billion/year, accounting for 23%),
- ST 1.3 (Biological & genetic resource strengthening; investment value of VND 0.77 billion/year, accounting for 23%),
- ST 1.1 (Building information and database; investment value of VND 0.42 billion/year, accounting for 13%),
- ST 1.2 (Hydrometeorology and early warning system and climate change projection; investment value of VND 0.30 billion/year; accounting for 9%), and
- ST 3.2 (Capacity across whole community in climate change response; investment value of VND 0.23 billion/year; accounting for 7%).

Total expenditures in those top five themes are VND 2.845 billion per year, accounting for 86% of total public expenditure in ST and PG.

	count	%		count	%		count	%
PG1.1	0	0	PG3.3	0.200	6.02	ST1.3	0.773	23.24
PG1.2	0	0	PG4.1	0	0	ST1.4	1.136	34.18
PG1.3	0	0	PG4.2	0	0	ST1.5	0.082	2.46
PG2.1	0	0	PG4.3	0.064	1.91	ST2.1	0	0
PG2.2	0.082	2.46	PG5.1	0.003	0.08	ST2.2	0	0
PG2.3	0	0	PG5.2	0	0	ST3.1	0.009	0.27
PG3.1	0.004	0.11	ST1.1	0.418	12.58	ST3.2	0.227	6.84
PG3.2	0.036	1.09	ST1.2	0.291	8.75			

## 2.4. Overseas Development Assistance climate programmes

Contribution of ODA to total climate change budget (average 2010 –2020):	35.2 %
Five largest ODA allocations in terms of climate budget:	
1. Urban infrastructure and environment development to adapt to CC in Hoi An ancient city (2018-2020, 13.5%)	
2. Urban environment improvement in Chu Lai- Nui Thanh (2016-2020, 12.3%)	
3. Dredging, emergency flood drainage and anti-saline intrusion on Co Co river, Hoi An city (2019-2020, 8.8%)	
4. Sewage and urban sanitation system for Nui Thanh Urban Area (2014, 2017-2020, 7.6%)	
5. Forestry sector development project (WB3) (2012-2013, 4.4%)	

## 2.5. Policy and planning instruments

Instrument	Yes (√) or No (X)
Local NTP-RCC, report period for 2010-2015	√ (Report 192/BC-UBND dated 06/11/2015)
Climate Change Action Plan for 2020-2030 period, with a vision towards 2050	√ (Decision 2579/QĐ-UBND dated 21/9/2020)
Green Growth Action Plan for 2015-2020 with a vision towards 2025	√ (Decision 2975/QĐ-UBND dated 21/8/2015)
Plan for Implementation of Paris Agreement	√ (Decision 3462/QĐ-UBND dated 25/9/2017)
	√ (Decision 2724/QĐ-UBND dated 05/10/2020)

### *Climate Change Action Plan (2013-2015, (2020) Outlook 2030):*

#### Tasks, responsibilities

##### DARD

- Agricultural production models adapted to climate change;
- Review and build irrigation reservoir
- Formulate policies to support large-scale agriculture, mechanization; build ecological agriculture models;
- Apply agro-forestry production model (hilly gardens)
- Assessment of climate change vulnerability of forest, adaptation capacity;
- Research forestry varieties to adapt to climate change;
- Monitoring changes in forest resources
- Building sustainable agro-forestry-forestry models;

- Strengthen forest fire protection and prevention;
- Raise awareness and capacity building for forestry stakeholders to respond to climate change.

#### Department of Transport

- Upgrade transport facilities in flood prone areas;
- Build models of vehicles using clean fuel;
- Study on mainstreaming transport & climate change in the province's programs and plans
- Building road drainage measures;
- Strengthen the capacity of staff public awareness about responding to climate change in transport activities.

#### Department of Industry and Trade

- Awareness raising program for authorities and communities on the impacts of climate change on the industrial sector and adaptive measures for industrial parks; raising enterprises awareness of energy conservation
- Build a green industrial park model including use of clean energy
- Construction of wastewater treatment in industrial parks and clusters;
- Integrate industry & climate change into provincial programs and plans

#### Department of Culture, Sport & Tourism

- Adjusting tourism planning to adapt to climate change; protect cultural heritage in the context of climate change;
- Make sure that river dredging and flood management accommodates river tourism, ecotourism;
- Private investment to protect biodiversity areas and sensitive ecosystems
- Community and tourist awareness raising;
- tourism infrastructure construction to take climate change into account;
- Replace CFC-based refrigeration equipment; limit emissions from transport; waste reduce, reuse, and recycling; saving water, electricity... in tourist establishments

#### Education & Training

- Extracurricular activities on climate change; swimming lessons for students;
- Raising awareness of education and training sector managers on climate change & response;
- Distribute materials on climate change to teachers and students;
- Adapt educational infrastructure to climate change and sea level rise.

#### Health

- Assess disease patterns and impact of climate change on health; early warning, rapid response to epidemics;
- Strengthen monitoring and surveillance of epidemics; community health care adaptive to climate change;
- Community awareness raising on health and climate change (webpage);
- Improve capacity for health workers.

#### DONRE

- Adjust land use plans taking into account climate change and sea level rise; meet the needs of changing crop structure; plan irrigation works, intensive farming and high productivity
- Prevent land degradation and pollution;
- Adjust urban land use planning, areas at risk of floods, landslides and SLR;
- Strengthening capacity of officials, raise people's awareness of climate change effects on water and land;
- Strengthen water quality monitoring

- Investigate surface and groundwater resources in the context of climate change;
- Develop plan for surface and groundwater management;
- Upgrade urban drainage and wastewater treatment systems;
- Build new reservoirs and upgrade irrigation works

Investment in clean water supply systems especially for coastal zone with saline water intrusion