



Final report

PROJECT
INTEGRATED WATER MANAGEMENT
AND URBAN DEVELOPMENT IN
RELATION TO CLIMATE CHANGE IN
NINH THUAN PROVINCE





Final report



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	Output 2. A comprehensive strategy on CC is in place. It is based on various studies, including CC data and hydraulic modeling focused on operational impact on settlements of Dinh river catchment and the revision of the existing master plans of Phan Rang city and its hinterland, with a focus on Dam Nai lake and Dinh river mouth, while key priorities of the CC action plan of the Dinh river basin are defined.
	Output 3. Priority strategic pilot activities are developed for lessons learned targeting either Dam Nai lake or–Dinh river mouth areas to increase resilience to CC, with appropriate operational and maintenance modalities.
	Output 4. The provincial CC strategy is supported by the active involvement of the communities and the private sector.
Total budget of the intervention	10.6 mil EUR
Period covered by the report	June 2019

Global appreciation

Describe your global appreciation of the intervention (max 200 words):	Describe your global appreciation of the intervention (max 200 words):
This is a significant project for people who are affected by the negative impacts of climate change on water resources in Ninh Thuan province. The water resource management institutions were improved by supporting management tools (models, equipment) and training courses on water resources management were organized for 1,554 officers. 107,914 people were raised awareness of climate change impacts on precious water resources. In particular, flooding problems were controlled for 202,135 urban residents in the downstream area of Dinh River.	
Score your global appreciation of the intervention²:	Score your global appreciation of the intervention³:
Very satisfactory	<i>Very Satisfactory</i>
National execution official⁴	Enabel execution official⁵
 <i>[Signature]</i> Đỗ Khoa Danh	<i>[Signature]</i>

² Very satisfactory - Satisfactory - Non satisfactory, in spite of some positive elements - Non satisfactory

³ Very satisfactory - Satisfactory - Non satisfactory, in spite of some positive elements - Non satisfactory

⁴ Name and Signature

⁵ Name and Signature

PART 1 : Results achieved and lessons learned

1 Assessing the intervention strategy

1.1 Context

Ninh Thuan is a poor province located at the end of Central Vietnam. People are often affected by the impacts of climate change. The drought is the common type of natural disaster in the province.

The provincial government's capacity in managing water resources is weak while this resource is increasingly affected by climate change. There are 351 people working on water resource management in the province. However, only about 20% of personnel are specialized in water resources. At the provincial level, there are only 04 personnel from Water, Hydro-Meteorology and Climate Change Division - Natural Resources and Environment Department responsible for advising on water resource management. In recent years, the building of dams, reservoirs and other forms of water storage in the province has not been implemented following an overall master plan for water resource development, there only is the irrigation sector master plan which only focus on water supply for agriculture. With that situation, it leads to low water use efficiency, management and control of water resource meet some troubles in the dry season and flooding season.

Under the support of Belgian government, the representative agency in Vietnam is Belgian Development Agency (Enabel) supported the project "Integrated Water Management and Urban Development in relation to Climate Change in Ninh Thuan Province" with the goal of improving institutional capacity of water resource management in the context of climate change. The project focuses on components of technical and institutional support in water resource management, training, strengthening capacity and implementing pilot investment in response to climate change.

The Enabel's resident representative and the Chairman of the Provincial People's Committee (PPC) are co-chairs of the project steering committee. The members are from the Ministry of Planning and Investment, the Ministry of Finance and the leaders of the provincial departments: Department of Natural Resources and Environment, Department of Agriculture and Rural Development, Department of Construction,

Department of Home Affairs, Department of Planning and Investment, Department of Finance. Please see the detailed list in Appendix 1: Project Steering Committee members. The participation of central representatives in the Steering Committee has contributed to solving the challenges related to disbursement of the project's fund, specifically, solving the problem at the provisions of the Law on Public related to capital plan approval.

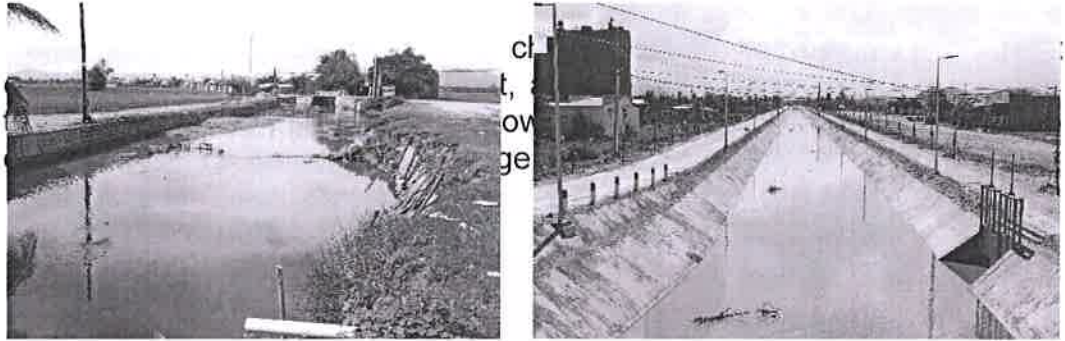
Implementation Unit for Capacity Development and ODA Water Resources Projects in Ninh Thuan Province is an agency established by the Provincial People's Committee, directly under the Provincial People's Committee to carry out the funded project management task. The director is a PPC's officer. This has helped speed up the resolution process for the province, specifically issuing decisions of the PPC.

Effective management of water resource is always a concern of the provincial government. The demand of the province is to solve agricultural drought in the dry season and flooding in the rainy season, especially in Phan Rang - Thap Cham city and surrounding areas such as Ninh Phuoc and Ninh Hai districts. The project supported the resolution of agricultural drought in the province by implementing a calculation model for reservoir operation and supported to study to reduce flooding in the downstream area of Dinh River in the rainy season by deploying hydrological/hydraulic model at Dinh River. This shows the harmony between the project's intervention and the demands of the province.

PPC always monitors the progress of the project and promptly directs the departments to assist the Project Coordination Unit to implement the project, ensuring the commitment to the donor.

1.2 Important changes in intervention strategy

The 10-steps strategy has a change in comparison with the original design of the technical financial file. Instead of step 9 "Implementation of pilot projects" will be implemented eventually, after all steps of data collection, institutional capacity assessment and improvement, modelling studies and strategy on climate change, master plan. Reality shows that the approval procedure for implementing the research takes a lot of time, so the selection of pilot activities to respond to climate change should be conducted at the same time as implementing research, the necessary adjustments will be made in the case of pilot activities having a target deviation in comparison with the result of studies. This risk was found at the first stage and decided by the Project Steering Committee. This is proved to be true in reality, as some important studies "Hydrological/hydraulic modeling of the Dinh river" and "Research on the impacts of saltwater intrusion at downstream of Dinh river" were approved at the end of 2018. In case of waiting until now to select the pilot project then ensuring the project time is not feasible.



The “Extension and Reinforcement of Cau Ngoi Channel” pilot project

2 Results achieved

2.1 Monitoring matrix

Results / indicators	Baseline value	End Target	End Value obtained	Comments
IMPACT: To contribute to the sustainable development of Ninh Thuan				
Number of CC actions conducted as a consequence of PPC decisions	03	51	19	
Sample evidence of increased resilience of sectors			04	
OUTCOME: To support the institutional capacity in Integrated Water Resources management and urban development in relation to Climate chance.				
Number of documents issued which address CC	4	89	44	
Number of trained stakeholders or trained staff who contribute newly acquired CC knowledge to decision-making processes	0	381	118	
% of provincial budget is invested in activities related to CC	15,4%	22,5%	36%	
Measurable increase in institutional capacity with respect to assessment criteria from the TICA	First TICA will provide the baseline value	No target setting required	n/a	
OUTPUT 1 : The capacity of the authorities of the province in terms of Climate Change, Integrated Water Resources Management and Urban Planning are improved with appropriate monitoring and evaluation mechanisms in place.				
Number of staff trained on climate change, integrated water resource management	0	942	1.016	

Results / indicators	Baseline value	End Target	End Value obtained	Comments
and/or urban development				
Average change in scores on entry and exit tests	0	25%	13%	
Appropriate equipment and software systems are in place	0	11	11	
Responsiveness of data (CC-IWRM & UD) management system to the provincial users	0	80%	61%	
Coordination and communication mechanism responds to the knowledge management need of the provincial authorities	0	90%	76%	
New and relevant information is available from the expanded hydrological & meteorological monitoring network	0	80%	74%	
OUTPUT 2 : A comprehensive strategy on CC is in place. It is based on various studies, including CC data and hydraulic modeling focused on operational impact on settlements of Dinh river catchment and the revision of the existing master plans of Phan Rang city and its hinterland, with a focus on Dam Nai lake and Dinh river mouth, while key priorities of the CC action plan of the Dinh river basin are defined.				
No. of conducted research	0	04	04	
A CC adaptation action plan is approved	0	01	01	
Master plans (provincial, cities/town) revised with regard to CC	0	01	0	
Prioritised proposals on CC are developed	0	tbc	53	
A Study on River basin water resource assessment with consideration of climate change is completed	0	01	01	
A reservoir management system for integrated operating rules to seek a balance	0	01	01	

Results / indicators	Baseline value	End Target	End Value obtained	Comments
between optimising water availability and reduce wet season flood risk is developed and implemented				
OUTPUT 3 : Priority strategic pilot activities are developed for lessons learned targeting either Dam Nai lake or-Dinh river mouth areas to increase resilience to CC, with appropriate operational and maintenance modalities.				
No of (pilot) investments implemented, complying with CC adaptation specifications	0	03	01	
Effective O&M is implemented for each priority investment	0	03	01	
No. of lessons-learned documents prepared on innovative features of the priority investments and of other aspects of the Project	0	08	05	
OUTPUT 4 : The provincial CC strategy is supported by the active involvement of the communities and the private sector.				
A public CC awareness raising strategy is developed	0	01	01	
A disaster early warning system is developed	0	01	01	
No. of beneficiaries of newly upgraded CC resilient houses	0	282	0	
No. of new households participating in CC credit program	0	230	0	
No. of people participating in newly established committees	0	92	1.374	
Sample evidence of attempts to involve communities and/or private sector	0	No target setting	55	

Results / indicators	Baseline value	End Target	End Value obtained	Comments
		required		
Sample evidence of changed behaviour due to increased awareness	0	No target setting required	06	
Effective Pilot of a performance-based service delivery contract between the IMC and the asset owner allocated by the provincial authorities in one area (one or two district) is implemented	0	100%	100%	
Effective support to the Water User Associations in one pilot district is completed.	0	100%	100%	
Sample evidence of changed behaviour due to increased awareness on best practices for river health and water use	0	No target setting required	0	

2.2 Analysis of results

2.2.1 To what extent will the intervention contribute to the impact (potential impact)?

According to the provincial economic structure, the fields of agriculture, forestry and fisheries account for 35.77%. The project area is concentrated in the downstream of Dinh River (Phan Rang - Thap Cham City, Ninh Hai and Ninh Phuoc Districts), people in this area cultivate wet rice and grapevines and aquaculture. They often suffer damage as flooding due to high tide and flooding in the rainy season.

The project has conducted the study on hydrological/hydraulic modeling in Dinh river downstream and the study on development of the early warning system in Dinh river upstream. As these studies were completed, the

flooding has not been occurred yet in order to test the project's satisfaction to the expectation of reducing flooding, contributing to the province's socio-economic development. However, in terms of the "Extension and Reinforcement of Cau Ngoi Channel" pilot project, there are about 52,000 people in Cau Ngoi area that have improved traffic and 2,682 hectare of basin area has been improved flood drainage due to high tide and flooding in the rainy season. Therein, there are 435 hectare of residential land), 2,198 hectare of rice and crops area and 55 hectare of aquaculture.

This area suffers both flooding and the lack of water for irrigation due to drought which is causes affecting grape production. As expected, the project will raise awareness in water-saving use. In reality, after the project was applied advanced water-saving irrigation technology to ensure stable and efficient water resource for irrigating grapevines which was implemented in pilot 05 hectare, the authority has planned to continue implementing 30 hectare more.

In total 109,468 participating people, through communication and training programs, there are about 40% women and 21% people from ethnic minorities.

2.2.2 To what extent has the outcome been achieved? Explain

The expected result is to support the provincial government to manage water resource effectively in the context of climate change. The reality of project implementation shows that the awareness of provincial government has been enhanced. Specifically, it is expected that the province will spend about 22.5% of total budget to invest in solving climate change impacts. According to a survey, at the end of 2018, the provincial government has spent 36% budget in activities related to climate change (increase about 50% in comparison with the initial expectation)

For solving the climate change's impacts, 61 documents have been issued (account for 70% compared to 89 documents as expected). These are also the project's significant efforts.

The project has also improved the capacity of water resources management, the stakeholders using the trained knowledge in the decision making process accounts for 31% compared to the initial expectation.

About 31% of trained staffs have applied knowledge to water resources management. This figure is largely influenced by the provincial government's plan to reduce staffs. Specifically, the personnel who trained by the project transferred or resigned (mostly officers directly advise to leaders for making decisions).

2.2.3 To what extent have outputs been achieved? Explain

Output 1: The capacity of the authorities of the province in terms of Climate Change, Integrated Water Resources Management and Urban Planning are improved with appropriate monitoring and evaluation mechanisms in place.

At the 6th the Project Steering Committee Meeting, the PSC decided to reduce the end-term target value under index 1.1 (output 1) "Number of staff trained on climate change, integrated water resource management and/or urban development" from 1,132 people to 942 people. In practice, by the end of the project, 1,016 people have been trained (about 108% of the plan). Therein, there is about 13% of trained people change their awareness after training courses.

There is 11/11 equipment and software systems have been installed (achieved 100% of the original target), including:

In 2017:

- 04 models of the study on hydrological/hydraulic modeling of the Dinh river (Approved on December 18, 2018) include:

- + Hydrological model.
- + 1-way hydraulic model.
- + 2-way hydraulic model.
- + Urban drainage model.

- 01 model of study on present - future climate data completed on September 11, 2017 and reviewed and approved by provincial agencies in 2018.

In 2018:

- 04 models of study on the early warning system:

- + 01 GIS database
- + 01 software for WR-CCIS
- + 01 set of equipment for Cai River Reservoir (changed into Sat river because Cai River has not been completed construction)
- + 01 server for data storage, processing and calculation (handed over to Information and Communication Department for management)

- 01 model of study on the impacts of saltwater intrusion was approved on September 20, 2018 includes an illustrated map on the impact of saltwater intrusion on agriculture, fisheries, current water supply and forecast for 2020, 2050 in the downstream of Dinh River.

In 2019:

- 01 set of equipment for 5 reservoirs under the study on “Strengthening capacity for integrated river and reservoir operation, equipment procurement support” (PIM 2.5).

According to the end-term survey, the province's water resource data management system can meet 61% of manager's demand.

The project has supported 18 gauging stations and 09 rain gauge stations in the basin for existing hydrological station network in the province. The new hydro-meteorological monitoring network has provided information for early warning system to calculate, test reality during the flooding season in 2018. The necessary information for users in the province such as flooded area, storm shelter location that are also clearly shown on the system's interface as well as providing information to operate the reservoir model. According to the end-term survey results, users assess that the new network system meets 74% of their demands.

Output 2: A comprehensive strategy on CC is in place

The project has been implemented and completed 05/05 studies as the design of the technical and financial file: (i) The hydrological/hydraulic modeling of the Dinh river and urban drainage modeling of Phan Rang-Thap Cham city - Hydrological/hydraulic modeling of the Dinh river (ii) The impacts of saltwater intrusion at downstream of Dinh river and propose adaptation measures - Saltwater intrusion (iii) The present - future climate data and analysis for water source management in Ninh Thuan province - Climate change scenarios (iv) Vulnerability assessment in relation to climate change and climate change action plan for Cai river basin and surrounding areas - Vulnerability assessment and (v) Strengthening capacity for integrated river and reservoir operation to reduce flood risk and to improve drought management - PIM 2.5.

The project has updated the provincial action plan response to climate change and approved by the Provincial People's Committee on May 8, 2019 in Decision No. 733/QĐ-UBND.

There are 53 priority proposals on climate change developed (shown in Table 109 “Summary of priority projects, programs responding to climate change in Ninh Thuan province under the Adjusted Action, version 2018” in the final report of research on Vulnerability Assessment). In the period of baseline survey, the number has not been determined.

Activity 2.3 “Master plans (provincial, cities) revised with regard to CC” has not been implemented (According to the decision of Project Steering Committee at the unexpected meeting on June 12, 2017). The reason is the master plan for socio-economic development of Ninh Thuan province to 2020 and vision to 2030 has been developed by major international corporations as Monitor (USA) and Arup (England) and approved by the

Prime Minister under Decision No. 1222/QĐ-TTg dated 22/7/2011. Therefore, the revision of master plan is a waste of project budget.

Output 3: Priority strategic pilot activities are developed

There are 01/03 of pilot investment item responding to climate change as “Extension and Reinforcement of Cau Ngoi Channel” project was implemented and handed over to Irrigation Management Company – the provincial agency to operate and maintain.

Two remaining items that are “Eco-house” and “Flooding mitigation for Phuoc Dan town by rehabilitation of siphons 12 and 13” are recommended to stop implementation by the mid-term assessment mission due to suspicion of suitability and exceeding the budget. The items were officially approved by the PSC to stop deploying in order to transfer the budget to other activities at the 5th PSC meeting on January 09, 2017.

Output 4: The provincial CC strategy is developed by the active involvement of the communities and the private sector.

With the aim of raising community's awareness on climate change and the impact of increasing rainfall intensity in a short time causing flooding in Cai River downstream, the project has completed development of early warning system. The system operated in 2018 but there is no large flooding for testing. In addition, the system is only pilot implementation at 01/21 reservoirs throughout the Dinh river basin, so the accuracy may not be guaranteed. The PPC is seeking funding to expand and upgrade the system for the whole basin.

There are 1,374/92 people participating in newly established/strengthened organizations within the framework of the project, these organizations include: The key communication group in Phuoc Huu commune, the cooperative group for water use in Phuoc Hau commune, 24 clubs “shopping basket – proud of housewife” in Phan Rang - Thap Cham city and Ninh Hai district, community groups supervise activities of discharging waste into the environment under “Extension and Reinforcement of Cau Ngoi Channel” project of local authorities where the construction passes through.

There have been 06 actions showing that awareness have been improved, including:

In 2016: 13 private enterprises contributed 703 trees and 10 million VND to plant trees at ecological lake in Phan Rang - Thap Cham city.

In 2017:

(1) The Cong Thanh kindergarten's teachers and local representative of Thanh Hai commune signed a commitment to maintain environmental sanitation responding to climate change.

(2) Youth unions in the province develop plans to coordinate environmental protection, respond to climate change. The plan has been distributed to the implementing agencies.

(3) Households in Thanh Hai commune signed commitments to participate in waste collection, not release livestock, and not discharge waste water indiscriminately into the environment.

2018:

- Women’s Union Association of Khanh Hai town established the sanitation group in Ninh Chu beach area, operates periodically every month.

- Ms. My Nu Kim Thanh, Chairman of the “shopping basket – proud of housewife” club in Thanh Y village, convinced people in the village to establish 01 sanitation self-management group with the aim of raising people’s awareness through activities such as cleaning the public area in the village, convinced people not to use plastic package.

The activity that has been cancelled by the Steering Committee is the Credit Fund to support housing upgrading to respond climate change (at the 5th meeting on January 09, 2017) with the reason that it is not enough time to assess the loan cycle.

In addition, an additional activity is the Water Supply Plan (at the 4th meeting on June 27, 2016) with the task of ensuring water security, providing water supply orientations for urban areas, zones, industrial parks and tourist areas in the province that is connected with existing and future water sources, rationally distributes water resources exploitation in the context of drought and climate change for development targets and supplies water to economic regions - Urban - industrial zones in the province.

2.2.4 To what extent did outputs contribute to the achievement of the outcome

The province’s water resource management institution has been improved through the project reviewed and evaluated water resource management, overlapping and gaps in water resource management are discovered. Important proposals were also launched. For example, after reviewing the project, the province has a plan to add more personnel to the Department of Water Resources, Hydrometeorology and Climate Change is a directly advisory agency to the Department of Natural Resources and Environment – The provincial agency responsible for water resources management.

In addition, the institution of water resource management has been enhanced, through 879 of water resources management officials (leadership level making decision and advisory level advising to leader to make decisions) were trained. According to the annual project evaluation

survey, the number of staff trained by the project has established and advised to issue plans implementing activities responding to climate change in the industry and management fields.

The management of irrigation system has been enhanced through the project provided equipment and trained 20 water user cooperative groups: 15 sets of computer and office equipment (printer, cabinet, table, chairs)

The project's support for installing 27 water level gauging stations and rainfall gauging has made the hydro-meteorological information more accurate.

Water resource data is more adequate and more specific in the reports of studies, maps of prediction of saline intrusion, maps of vulnerability due to impacts of climate change, maps of flooding as climate change scenarios.

The management task of provincial government in the field of water resource will be easier because there were 73,191 people (about 12% of the provincial population) informed and raised awareness of the project's intervention field, through directly participating or in relation to the project's communication activities.

2.2.5 Assess the most important influencing factors. What were major issues encountered? How were they addressed by the intervention?

TSU always provides timely technical support when the province needs it. Financial management specialists often have business trips to introduce and support provincial financial staff to use and update financial management tools.

The Steering Committee has timely assisted in solving the project's difficulties, even there were unexpected meetings at leader level of the Steering Committee to make urgent decisions affecting the project, for example, the meeting June 29, 2016 promoted the approval of additional ODA fund to implement "Strengthening management capacity in river basin by developing participatory irrigation management in relation to climate change in Ninh Thuan Province" and decided to keep personnel stably at Project Management Unit. The meeting on June 12, 2017 decided to adjust budget lines to cover fund for implementing Cau Ngoi project in order to ensure the effectiveness of project's sponsoring and the meeting on June 25, 2018 promoted to establish a scientific council to evaluate the important research results such as hydrological/hydraulic modelling of the Dinh river, early warning system and decision on additional advance of ODA fund plan for 2018 to have enough budget to implement Cau Ngoi project.

2.2.6 Assess the unexpected results, both negative and positive ones

According to the inherited design of the project (Experiencing the order of steps: the survey step assesses the capacity, research steps and selecting and implementing pilot activities to respond to climate change steps), as deploying project, the pilot activity respond to climate change is difficult to implement because it will take a long time at the research stage (the time for approval of studies in the province will take long time because these researches are quite new and complex compared to the evaluation capacity of departments in the province). However, thanks to the change of implementation strategy, the research step and selecting and implementing pilot activities step are implemented at the same time, therefore by the end of May 2019 pilot activities response to climate change has been completed (Extension and Reinforcement of Cau Ngoi Channel)

The mid-term review team recommended that the “Eco-House” pilot investment should not be implemented because it is not suitable. The team analysed that the investment in “Eco-house” is only a one-time use and difficult to replicate. With an investment of 10 million/person is not economic benefits.

The “Housing credit fund to adapt to climate change” activity is also recommended not to be implemented by the Mid-term Review Team. It needs a large budget to implement (30-40 million/house). At the same time, the Women’s Union - the agency expected to implement also expressed concern about the operation of the fund. Such a large amount of money requires regular payments of between 1 million and 1.7 million VND and cannot be considered a social fund to support low-income families. By the end of 2016, there was no suitable way to implement the fund. If it is deployed it will not be possible to complete a closed cycle of loans and repayments.

2.2.7 Assess the Integration of Transversal Themes in the intervention strategy

Characteristic of women in the province is that they directly participate in activities related to water resource such as agricultural production (wet rice cultivation), family activities (bathing and washing), taking water for living (Ninh Phuoc district). In addition, they are vulnerable due to the negative impacts of climate change on water resource. Therefore, at the step of communication planning, it is determined to ensure women’s participation in all project activities. By the end of the project, 42,797 women have been raised awareness of environmental protection, water resource protection and utilization, climate change and adaption solutions. About 32% of women (out of 1,554 people) are involved in training courses strengthening capacity response to climate change.

2.2.8 To what extent have M&E, backstopping activities and/or audits contributed to the attainment of results? How were recommendations dealt with?

The project operation manual and the first report of the project were approved by the Steering Committee at the 4th meeting on June 27, 2016 with the overall project plan and updated annually, M&E staffs having basis for implementing project monitoring.

Donor's specialists quarterly or unexpectedly make business trips to support the monitoring of project progress and provide timely recommendations on project management and financial management.

Project management tools are provided and constantly updated: FinPlan financial management tools, contract monitoring Milestone contract, operation monitoring templates MONOP, monitoring of implementing recommendations of audit, important decisions of the Steering Committee.

Based on the detailed plan and timely guidelines of specialists, the project implemented most activities (except for some activities cancelled due to objective factors) and disbursements reached about 90 %.

3 Sustainability

3.1.1 What is the economic and financial viability of the results of the intervention? What are potential risks? What measures were taken?

Because the Project Management Unit is established by the province under a multi-project management institution, the project's Web site continues to be operated, the research results are posted for users to access for free.

The operation and maintenance of the pilot project "Extension and Reinforcement of Cau Ngoi Channel" is carried out by Irrigation Management Limited Company. The owner is the PPC and the company is the owner representative. The PPC will allocate funds for the Company to implement O&M.

The results and products of the studies were issued by the Provincial People's Committee to relevant agencies and departments, attached with the mechanism of coordination of receiving and using between agencies and departments.

3.1.2 What is the level of ownership of the intervention by target groups and will it continue after the end of external support? What are potential risks? What measures were taken?

675 trainees from relevant agencies and departments have been trained to use the results of the studies. The Provincial People's Committee

handed over the results of the research to the relevant agencies and departments, attached with the decision to assign specific tasks (receiving reports, managing software, updating data).

02 websites <http://vndroughtportal.com/> and <http://songdinh.thuyloivietnam.vn/SongDinh/> were introduced, instructing for use at the training courses:

- October 29 - 31, 2018: Introducing the early warning system, guiding data reading, using software to manage and exploit.
- November 01 - 02, 2018: Introducing the early warning system, guiding the installation, adjustment, data reading, installation and maintenance as well as operating all devices
- November 05 - 06, 2018: Instructing the use of Early Warning Software to manage and exploit
- December 20 - 21, 2018: Introducing and guidance the use of operating model and decision support system for integrated management of reservoirs.
- December 22, 2018: Transferring operation model system of reservoir: Rain-flow model MIKE NAM, water balance model MIKE Hydro Basin, Inter-lake management model MIKE Operation.
- June 06 - 07, 2019: Training and introducing project product tools
- June 10 - 11, 2019: Technical support for using and applying product and result of project.

Department of Information and Communication is the software management unit according to comment of the Provincial People's Committee in the documents: Notice No. 319/TB-VPUB dated September 28, 2018, 55/TB-VPUB on March 14, 2019:

- Water balance model MIKE Hydro Basin and operation reservoir model Mike Operation. Attached with 01 computer set.
- 01 machine running early warning system software and database administration.
- 01 machine to be installed MIKE 2016 software of study hydraulic/hydrological model of Dinh river - drainage for Phan Rang - Thap Cham city.

Irrigation Management Limited Company is the unit responsible for operation and maintenance of the following works (at notice No. 271/TB-VPUB on August 14, 2018 and notice No. 319/TB-VPUB September 28, 2018):

- 27 rain and water level gauging stations of the project, specifically:

- + 15 water level gauging stations (Lam Cam, Song Pha, Nha Trinh, Nuoc Ngot, Bau Zon, Phuoc Trung, Nui Mot, Song Bieu, Ba Rau, Cho Mo, Lanh Ra, Tan Giang, Tan My, Thanh Son, Tra Co)
- + 02 rain and water level gauging stations at downstream: station at Dao Long Bridge and station at Tan My Bridge.
- + 09 rain gauging stations: 06 centre rain gauging stations (Cho Mo, Lanh Ra, Phuoc Trung, Bieu River, Tan Giang and Tra Co) and 03 rain gauging stations at Sat river basin: Cha Dung, Phuoc Thanh and Song Hau;
- + At Song Sat Lake: 01 water level gauging station, 01 station for monitoring the opening of the overflow gate, 01 station for measuring the opening of sluice, 01 camera and a screen at operation house.
- Cau Ngoi channel project.

The Provincial People's Committee has assigned office equipment of the study "Strengthening management and operation capacity of irrigation system, equipment procurement support for PIM" (PIM 4.4) according to notice No. 319/TB-VPUB on September 28/2018 for agencies and departments:

- 01 set of desktop, 01 printer, 01 office desk set, 01 document cabinet, 01 Office 365 Business software for each water use cooperation group as the following:
 1. Van Phuoc water use cooperation group in Phuoc Thuan commune.
 2. Phuoc Hau water use cooperation group in Phuoc Hau commune.
 3. Hoai Trung water use cooperation group, Phuoc Thai commune.
 4. Huu Duc water use cooperation group in Phuoc Huu commune.
 5. Nhi Ha village 1 water use cooperation group Nhi Ha commune.
 6. Nhi Ha village 2 water use cooperation group Nhi Ha commune.
 7. Van Lam 1 water use cooperation group Phuoc Nam commune.
 8. Van Lam 2 water use cooperation group Phuoc Nam commune.
 9. Van Lam 3 water use cooperation group - Phuoc Lap, Phuoc Nam commune.
 10. Van Lam 4 water use cooperation group in Phuoc Nam commune.
 11. Ninh Quy water use cooperation group Phuoc Son commune.
 12. Phuoc An water use cooperation group, Phuoc Vinh commune.
 13. Hoa Son water use cooperation group, Hoa Son commune.
 14. Thuy Loi village water use cooperation group, Tan Hai commune.

15. Go Den water use cooperation group in Tan Hai commune.
 16. Ba Thap village water use cooperation group, Bac Phong commune.
 17. Krom water use cooperation group in Cong Hai commune.
 18. Suoi Vang water use cooperation group in Cong Hai commune.
 19. Ba Ho water use cooperation group in Cong Hai commune.
 20. Phuong Hai water use cooperation group Phuong Hai commune.
- 01 HP desktop set (with monitor), 01 ASUS laptop, 01 HP printer, 02 office table and chair sets, 01 document cabinet, 02 Office 365 Business software and 01 Arc GIS software: are delivered to Irrigation Work Exploitation One Member Limited Company (Notice No. 319/TB-VPUB dated 28/9/2018)
 - 14 sets of computer under the research “Strengthening capacity for integrated river and reservoir operation, equipment procurement support” (PIM 2.5) was assigned to Irrigation Work Exploitation One Member Limited Company at document 271/TB-VPUB on August 14, 2018).

In order to avoid the risk of losing monitoring equipment, Project Management Unit is implementing a plan to protect equipment by B40 mesh fence.

3.1.3 What was the level of policy support provided and the degree of interaction between intervention and policy level? What are potential risks? What measures were taken?

One of the results of the project that affects the policy of water resource management in response to climate change is to support the province to update the action plan to respond to climate change in Ninh Thuan in 2012. Potential risk identified is the updated plan not completely implemented due to difficulties in finding fund to implement actions/projects.

In addition, the result of the study “Water resources planning for domestic use in Ninh Thuan province” within the framework of the project will also be updated into the overall socio-economic development plan of the province.

3.1.4 How well has the intervention contributed to institutional and management capacity? What are potential risks? What measures were taken?

The government’s capacity to manage water resources is enhanced through the project's results, for example through flooding warning system, government will make a quick decision regarding to evacuate people in flooding area, as well as basing on the results of hydrological hydraulic

study of Dinh River, the province will avoid investing in the identified locations which will be flooded.

Institutional management of water resource will be improved due to the human resource for decision making which has been trained by the project to improve capacity through training courses. The potential risk that is identified is staff transfer without any solution to be taken to solve the risk due to this transfer being outside the scope of the project.

The capacity of water resource management of province will be improved due to the fact that the management of water resource at the commune level is enhanced because of supporting office equipment. With supported equipment, decision-making information will be accessed faster and processing time and advice will be more economical than previous manual methods.

4 Learning

4.1 Lessons Learned

Lessons Learned	Target Audience
The project's M&E indicators should be specific and quantitative to facilitate the project's effectiveness evaluation after completion.	The officer prepare project document
For the purpose of contributing to climate change response, the community and private sector's involvement in planting trees for urban should be actively mobilized.	The Project Management Units

4.2 Recommendations

Recommendation	Source	Target audience
No recommendation		

PART 2: Synthesis of (operational) monitoring

1 Follow-up of decisions by the JLCB

N°	Decision				Action			Follow-up	
	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
1	Some of MCDU human resources will continue implementing the CC project and be paid the maximum allowance of 50%	05/11/2013	1st meeting minutes PSC	PSC	Signed concurrent labor contract	PCU	01/12/2013	Signed part-time contracts of the Project Coordination Unit's staff	CLOSED
2	BTC supports in preparing the proposal of flood control at Dinh river. The PPC is suggested to work with the Ministry of Planning and Investment and the Embassy of Belgium on the necessary application procedures to receive grant from Vietnamese-Belgium research and consulting fund.	05/11/2013	1st meeting minutes PSC	PSC		BTC			CLOSED

Follow-up									
Decision					Action			Follow-up	
N°	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
3	Appoint Mr. Vo Ngoc Minh as Vice Project Director for CC project, to be paid from the province's counterpart fund	28/01/2015	2nd meeting minutes	PSC	Issue decision	PPC	28/02/2015	Issued Decision No.1419/QĐ-UBND dated June 25, 2015	CLOSED
4	Exclude Dam Nai from project scope. Modify the logical framework (after mid-term review)	28/01/2015	2nd meeting minutes	PSC	Exclude Dam Nai from studies under result 2	PCU	28/02/2015	Have been being implemented	CLOSED
					Adjust the Logical framework			After the midterm evaluation on Oct 15, 2016, the Logical Framework was adjusted. Adjusted the Logical framework after the midterm evaluation on Oct 15, 2016	CLOSED

N°	Decision				Action			Follow-up	
	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
	province							22/3/2017	
17	The English version of Diplomatic Note on TFF Adjustment with an addition of PIM as a legal basis for implementing activities	09/01/2017	5th PSC meeting minutes	PSC	Apply to the project management	PCU	09/01/2017	Have been implemented	CLOSED
18	Cease the investment of ecohouse and the CC resilient credit fund	09/01/2017	5th PSC meeting minutes	PSC	Transfer the budget to the implementation of other activities	PSC	09/01/2017	The PSC decided to transfer the budget to the implementation of other activities at the 5th Meeting	CLOSED
19	BTC and Embassy of Belgium act upon the relevant Vietnamese governmental agencies/ ministries to allocate the 2017 budget plan	02/08/2017	6th PSC meeting minutes	PSC		BTC	30/09/2017		
20	Transfer EUR 9,000 EUR from 20101 (Regie) to A0108 (NEX) for MCDU to hire a Communication and Community	02/08/2017	6th PSC meeting minutes	PSC	apply to the financial management	the PCU's accounting staff	02/08/2017	updated the budget modification into the financial management	CLOSED

Follow-up									
Action									
Decision									
N°	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
	Development Consultant							tool of BTC	
21	Agree that the deadline for the contracts is calculated from the day BTC approves the respective final reports as a basis for further final settlements.	02/08/2017	6th PSC meeting minutes	PSC	apply to making payment for the researching contracts	the PCU's accounting staff	02/08/2017	Has been applied	CLOSED
22	Decrease the final target value of the indicator 1.1 (output 1.1) "number of officers to be trained on Climate change, IWRM, and urban development" from 1.132 participants down to 942 participants	02/08/2017	6th PSC meeting minutes	PSC	Adjust the value of indicator 1.1	the PCU's M&E staff	02/08/2017	Adjusted the indicator values	CLOSED
23	Enabel will use the budget for self-governing to hire a qualified national consultant to review and assess the HH study	30/03/2018	The 7th Steering Committee's meeting minutes	PSC	The PPC will cooperated with the MARD to accelerate the process of getting comments on the Final report	The PPC	30/09/2018	The MARD established the Scientific Council on Evaluation of the research results	CLOSED

N°	Decision				Action			Follow-up	
	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
28	Rain gauge stations of the Early Warning System IMC managed by IMC	14/08/2018	271/TB-VPUB	Chairman of PPC	Handing over the rain gauge station to IMC	PCU	31/10/2018	Independent consultant has evaluating operation situation of equipment. Handed over office equipment to IMC on 27/02/2019 with minutes.	ONGOING
29	IMC receives and manages the assets of the research on "Strengthening management capacity of reservoir - PIM 2.5" and research on "Strengthening management and operation capacity of irrigation system - PIM 4.4"	28/09/2018	319/TB-VPUB	Chairman of PPC	Handing over equipment to IMC	PCU	31/12/2018	Handed over equipment of PIM 4.4 to IMC on 17/02/2019 with minutes. Handed over equipment of PIM 4.4 to Water user groups with minutes.	CLOSED
30	Department of Information Communications received Early Warning	28/09/2018	319/TB-VPUB	Chairman of PPC	Handing over the server to Department of Information and Communication	PCU	15/10/2018	Conducted survey on location to set up server at the DIC	CLOSED

N°	Decision					Action			Follow-up	
	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status	
	Server								ONGOING	
31	Extend contract of packages: PIM 2.5, PIM 4.4 và EWS to 31/3/2019.	16/01/2019	The 8th Steering Committee's meeting minutes	PSC	Sign contract's appendix	the PCU's accounting staff	31/01/2019	Signed contract's appendix	CLOSED	
32	Enabel will support on hiring consultants to assess the quality of the results of CC downscaling study	16/01/2019	The 8th Steering Committee's meeting minutes	PSC		Enabel	31/01/2019			
33	Enabel will sign a contract with the consultant on operation of the studies	16/01/2019	The 8th Steering Committee's meeting minutes	PSC		Enabel	31/01/2019	Signed contract with Vietnam Academy for Water Resources on 29/01/2019		
34	Use VAT refund to pay for the completed volume of project activities.	16/01/2019	The 8th Steering Committee's meeting minutes	PSC	Apply to project management	the PCU's accounting staff	16/01/2019	updated the budget modification into the financial management tool of BTC	CLOSED	
35	Extend the time to complete Cau Ngoi canal to 30/3/2019	16/01/2019	The 8th Steering Committee's meeting	PSC	Sign contract annexes	the PCU's accounting staff	31/01/2019		CLOSED	

	Decision				Action			Follow-up	
	Decision	Identification period (dd/mm/yyyy)	Source*	Actor	Action(s)	Resp.	Deadline (dd/mm/yyyy)	Progress	Status
N°			minutes						
36	Making advanced payment, post-control on Belgian capital has been transferred to the project according to the progress of activities will be made	16/01/2019	The 8th Steering Committee's meeting minutes	PSC	Apply to project management	the PCU's accounting staff	16/01/2019	updated the budget modification into the financial management tool of BTC	CLOSED
37	Department of Information Communication will manage the server of PIM 2.5	14/03/2019	Notification No.55/TB-VPUB	Vice Chairman of PPC Pham Van Hau	Handing over the server to Department of Information and Communication	The PCU staff who is responsible for studies management	31/03/2019	The server was handed over on 05/4/2019 with minutes signed by relevant agencies.	CLOSED

2 Expenses

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019			
				ODA	VND	Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019				Total (since project start to 31/5/2019)	
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND
A		Specific objective: Strengthen institutional capacity in Ninh Thuan province in IWRM and UD in relation to CC		7.937.265,46	1.163.200,00	4.537.961,60	650.144,38	2.568.929,28	288.564,91	7.106.890,88	938.709,29	911.627,70	224.490,71
A_01		R1: The capacities in CC, IWRM and urban planning within the province are improved		1.060.200,00		691.581,11		68.533,97		760.115,08		300.084,92	
A_01_01	R1.1	Capacity building of PCU in project management, procurement, M&E and reporting tools.	TQL	260.000,00		20,39				20,39		259.979,61	
A01.01.01		Training in project management & procurement, support to the writing of the POM with coaching		220.000,00		20,39				20,39		219.979,61	
A01.01.02		Development of a M & E strategy in CC in coordination with central		40.000,00								40.000,00	

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018	Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)		
				ODA	VND	ODA	VND	ODA	VND	ODA	VND
		level, the PR and TSU with training and coaching									
A_01_02	R1.2	Technical Institutional and capacity Needs Assessment	QLDA	41.700,00		45.620,82				(3.920,82)	
A_01_03	R1.3	Capacity building of related agencies and stakeholders in CC, IWRM, urban development & community involvement	QLDA	299.000,00		263.472,76		34.870,91		298.343,67	656,33
A01.03.01		Training on update modelling and experience sharing working groups on topics specific to the province		119.000,00		121.493,57				121.493,57	(2.493,57)
A01.03.02		National and international study tours in coordination with TSU		53.000,00		53.718,71				53.718,71	(718,71)
A01.03.03		Organization of workshops, seminars at the province level in coordination with TSU		45.000,00		45.353,88				45.353,88	(353,88)
A01.03.04		Support to academic studies related to CC,		79.000,00		42.535,23		34.076,32		76.611,55	2.388,45

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement						Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)			
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND
		IWRM & urban planning in the province											
A01.03.05		Legal Consultancy		3.000,00		371,37					371,37		2.628,63
A01.03.06		English Course						794,59			794,59		(794,59)
A_01_04	R1.4	Strengthen cooperation/coordination mechanisms among agencies with regards to CC, IWRM & urban planning	QLDA	80.000,00		17.688,62		5.744,10			23.432,72		56.567,28
A01.04.01		Training and coaching consultancy services including operational costs		77.500,00		17.688,62		5.744,10			23.432,72		54.067,28
A01.04.02		Coordination and coaching mechanisms with other 2 provinces		2.500,00									2.500,00
A_01_05	R1.5	Data collection baseline study)	QLDA	76.000,00		83.106,09		343,68			83.449,77		(7.449,77)
A01.05.01		Socio-economic survey and baseline study, including behavior, HH knowledge about CC		63.655,74		70.001,99					70.001,99		(6.346,25)
A01.05.02		Existing data inventory &		6.338,70		6.959,07					6.959,07		(620,37)

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement						Balance till date: 31/5/2019				
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)						
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND	
		collection														
A01.05.03		Additional surveys		6.005,56		6.145,03		343,68		6.488,71		(483,15)				
A_01_06	R1.6	Support to hydro-meteorological monitoring stations	QLDA	128.000,00		140.000,00				140.000,00		(12.000,00)				
A01.06.01		Hardware & software support to stations for collection, weather, climate, and hydro levels forecasts.		90.909,09		140.000,00				140.000,00		(49.090,91)				
A01.06.02		Training		37.090,91								37.090,91				
A01.06.03		O & M measures														
A_01_07	R1.7	Comprehensive database management through GIS	QLDA	100.000,00		99.237,15				99.237,15		762,85				
A_01_08	R1.8	Communication & dissemination of lessons learned	QLDA	75.500,00		42.435,28		27.575,28		70.010,56		5.489,44				
A_02		R 2: Comprehensive integrated strategy to respond to CC is in place	QLDA	1.075.000,00	100.000,00	955.957,91		102.477,24	98.097,02	1.058.435,15	98.097,02	16.564,85				1.902,98
A_02_01	R2.1	Comprehensive studies and modelling of Dinh river basin with focus on Dam Nai and Dinh river		577.000,00		588.653,83		33.297,63		621.951,46		(44.951,46)				

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)	
				ODA	VND	ODA	VND	ODA	VND	ODA	VND
		estuary.									
A02.01.01		Hydraulic modelling of Dinh basin with scenarios (flooding, surface, underground water, diversion towards Dam Nai...)		273.500,00		300.002,86		17.035,00		317.037,86	(43.537,86)
A02.01.02		Sea level rise & saline intrusion impact study of Dinh river and Dam Nai estuaries		95.000,00		86.371,52		16.262,63		102.634,15	(7.634,15)
A02.01.03		CC modelling		150.500,00		156.682,28				156.682,28	(6.182,28)
A02.01.04		Vulnerability impact analysis on socio-economy and private & public assests due to natural disaster and CC		58.000,00		45.597,17				45.597,17	12.402,83
A_02_02	R2.2	Support to review the strategy on CC in a participatory way based on the studies		80.000,00		80.000,00				80.000,00	
A_02_03	R2.3	Detailed Master plans of Dam Nai & Dinh estuary as eco2 city districts, considering CC and SSP									

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)	
				ODA	VND	ODA	VND	ODA	VND	ODA	VND
A_02_04	R2.4	Priority action plan, methodology, tool, process and consultancy.		93.000,00		20.851,40		65.004,00		85.855,40	7.144,60
A_02_05	R2.5			325.000,00	100.000,00	266.452,68		4.175,61	98.097,02	270.628,29	54.371,71
A_03		R3: Improved physical conditions integrating CC issues around Dam Nai lake or Dinh river mouth	PM	4.964.400,00	1.063.200,00	2.395.075,97	650.144,38	2.216.607,45	190.467,89	4.611.683,42	352.716,58
A_03_01	R3.1	Physical infrastructure		4.884.400,00	1.063.200,00	2.395.075,97	650.144,38	2.216.607,45	190.467,89	4.611.683,42	272.716,58
A03.01.01		Study, EIA, appraisal, supervision		470.000,00		41.396,64				41.396,64	428.603,36
A03.01.02		Land acquisition									
A03.01.03		Compensation									
A03.01.04		Works		4.414.400,00	1.063.200,00	2.353.679,33	650.144,38	2.216.607,45	190.467,89	4.570.286,78	(155.886,78)
A_03_02	R3.2	Support to develop appropriate O & M measures		80.000,00							80.000,00
A_04		R4: Active involvement of community and private sector	QLDA	837.665,46		495.346,61		181.310,62		676.657,23	242.261,35

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement						Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)			
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND
A_04_01	R4.1	Awareness rising of all stakeholders of CC and early warning disaster system		264.000,00		126.452,31		99.922,94		226.375,25		37.624,75	
A04.01.01		Campaigns about CC impact, change of behavior, water & energy efficient buildings for communities and private sectors		114.000,00		102.001,45		10.350,97		112.352,42		1.647,58	
A04.01.02		Early warning system		150.000,00		24.450,86		89.571,97		114.022,83		35.977,17	
A_04_02	R4.2	Set- up 2 platforms of dialogue for Dinh river basin with all major stakeholders with focus on Dam Nai & Dinh estuary.		181.000,00		106.850,64				106.850,64		74.149,36	
A04.02.01		Legal framework		57,87		57,87				57,87			
A04.02.02		Activities of the river to integrate CC in IWRM and strategic structural planning		104,62								104,62	
A04.02.03		Coordination and follow up											
A04.02.04				129.770,00		105.626,26				105.626,26		24.143,74	

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement						Balance till date: 31/5/2019
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)		
A04.02.05				ODA	VND	ODA	VND	ODA	VND	ODA	VND	
				31.067,51		1.166,51				1.166,51		29.901,00
A04.02.06				20.000,00								20.000,00
A_04_03	R4.3	Saving and credit to support communities to improve housing& neighborhood conditions to improve resiliency to CC		665,46		614,08				614,08		51,38
A04.03.01		Management of the fund and technical advice		630,00		614,08				614,08		15,92
A04.03.02		Initial contribution		35,46								35,46
A04.04	R4.4			370.000,00		254.324,66	77.981,26			332.305,92		118.947,20
A04.05	R4.5			22.000,00		7.104,92	3.406,42			10.511,34		11.488,66
A04.05.01				5.000,00		4.479,22				4.479,22		520,78
A04.05.02				17.000,00		2.625,70	3.406,42			6.032,12		10.967,88
X		Contingencies		61.000,00								61.000,00
X_01		Contingencies		61.000,00								61.000,00
X_01_01		Contingencies project management	QLDA									

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)				Disbursement				Balance till date: 31/5/2019	
				ODA	VND	Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)		ODA	VND
X_01_02		Contingencies own management	TQL	61.000,00								61.000,00	
X_01_03		Contingencies project management	QLDA										
X_01_04		Contingencies own management	TQL										
		TOTAL ACTIVITIES											
Z													
Z_01		General means		1.001.734,54	436.800,00	479.175,18	328.038,64	46.333,40	10.590,20	525.508,58	338.628,84	476.225,96	98.171,16
Z_01		Humance resources		457.300,00	359.800,00	129.426,99	271.847,81	9.831,10	10.590,20	139.258,09	282.438,01	318.041,91	77.361,99
Z_01_01		Technical Assistance	TQL	299.500,00	30.000,00		24.585,15		925,03		25.510,18	299.500,00	4.489,82
Z01.01.01		National technical assistant in IWRM and water in urban context and TSU liasion officer		137.500,00								137.500,00	
Z01.01.02		National community and communication specialist		27.000,00								27.000,00	
Z01.01.03		Independent quality control fro second opinion		50.000,00								50.000,00	
Z01.01.04		Provision for consultancy specific to		70.000,00								70.000,00	

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)	
				ODA	VND	ODA	VND	ODA	VND	ODA	VND
		the province needs									
Z01.01.05		Provision for national consultancy for VN procedures			30.000,00		24.585,15		925,03		25.510,18
Z01.01.06		Legal advice		15.000,00						15.000,00	
Z_01_02		PCU staff		157.800,00	329.800,00	129.426,99	247.262,66	9.831,10	9.665,17	139.258,09	256.927,83
Z01.02.01		Allowance to project director part-time (funded by PPC)			21.600,00		22.488,94		572,49		23.061,43
Z01.02.02		Allowance to deputy director full-time, expert in water management and M & E.			36.000,00		28.844,91				28.844,91
Z01.02.03		Allowance to collaborators from other departments			6.600,00		4.815,36		602,62		5.417,98
Z01.02.04		CC and environment officer		37.400,00		32.332,33		2.784,20		35.116,53	2.283,47
Z01.02.05		Data management, GIS and IT expert		55.000,00		45.744,12		4.837,66		50.581,78	4.418,22
Z01.02.06		Urban Planning Expert			11.000,00						11.000,00
Z01.02.07		Hydro- met expert		28.400,00		19.774,34				19.774,34	8.625,66
Z01.02.08		Financial manager			59.000,00		41.689,52		4.603,55		46.293,07
											12.706,93

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement								Balance till date: 31/5/2019
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)				
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND	
Z01.02.09		Accounting and administrative assistant			36.000,00		30.318,64		1.046,54		31.365,18		4.634,82	
Z01.02.10		Translators		37.000,00	51.000,00	31.576,20	37.210,07	2.209,24	1.046,54	33.785,44	38.256,61	3.214,56	12.743,39	
Z01.02.11		Driver			21.600,00		15.833,40		523,26		16.356,66		5.243,34	
Z01.02.12					87.000,00		66.061,82		1.270,17		67.331,99		19.668,01	
Z_02		Investment	QLDA	72.174,54		66.863,05		1.526,43		68.389,48		3.785,06		
Z_02_01		Vehicle		33.974,54		33.974,08				33.974,08		0,46		
Z02.01.01		Motorbikes		3.000,00		2.419,05				2.419,05		580,95		
Z02.01.02		All road vehicle		30.974,54		31.555,03				31.555,03		(580,49)		
Z_02_02		Office Equipment		16.500,00		12.386,31		1.526,43		13.912,74		2.587,26		
Z_02_03		Information Technology Equipment		16.700,00		15.751,67				15.751,67		948,33		
Z02.03.01		Computers		5.000,00		7.177,27				7.177,27		(2.177,27)		
Z02.03.02		Laptops		1.200,00		808,28				808,28		391,72		
Z02.03.03		Camera and scanner		2.000,00								2.000,00		
Z02.03.04		Printers		1.000,00		585,62				585,62		414,38		
Z02.03.05		Copiers (large)		7.500,00		7.180,50				7.180,50		319,50		
Z_02_04		Office rehabilitation and LAN installation		5.000,00		4.750,99				4.750,99		249,01		

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement						Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)			
				ODA	VND	ODA	VND	ODA	VND	ODA	VND	ODA	VND
Z_03		Operating costs	QLDA	324.760,00	77.000,00	282.885,14	56.190,83	34.975,87		317.861,01	56.190,83	6.898,99	20.809,17
Z_03_01		Office rent											
Z_03_02		Utilities		48.200,00		39.968,32		6.670,50		46.638,82		1.561,18	
Z_03_03		Vehicle operating costd (1)		61.000,00		56.254,48		5.046,45		61.300,93		(300,93)	
Z_03_04		Communications costs include internet		19.000,00		17.315,64		2.348,18		19.663,82		(663,82)	
Z_03_05		Operational costs		122.160,00	77.000,00	98.710,14	56.190,83	15.397,48		114.107,62	56.190,83	8.052,38	20.809,17
Z_03_06		Fights and per diem (to attend TSU activities)		53.000,00		51.527,79		4.499,46		56.027,25		(3.027,25)	
Z_03_07		Representation costs		14.400,00		12.751,95		381,42		13.133,37		1.266,63	
Z_03_08		Provincial Steering Committee		7.000,00		6.356,82		632,38		6.989,20		10,80	
Z_04		Audit, follow up and evaluation	TQL	147.500,00								147.500,00	
Z_04_01		Backstopping		12.500,00								12.500,00	
Z_04_02		Audit		55.000,00								55.000,00	
Z_04_03		MTR, final evaluation in coordination with TSU & other 2 provinces		80.000,00								80.000,00	
		TOTAL GENERAL		9.000.000,00	1.600.000,00	5.017.136,78	978.183,02	2.615.262,68	299.155,11	7.632.399,46	1.277.338,13	1.448.853,66	322.661,87

Mã ngân sách	Result	Activities	FIN code	Budget/TFF (9 th budget line transfer)		Disbursement				Balance till date: 31/5/2019	
						Total cumulative disbursements until December 31, 2018		Total in 01/01/2019 to 31/5/2019		Total (since project start to 31/5/2019)	
				ODA	VND	ODA	VND	ODA	VND	ODA	VND
		BUGETARY									
		The balance of advanced for activities									
		Difference by the Exchange and Bank interest									
		Own M		768.000,00	30.000,00	20,39	24.585,15		925,03	20,39	25.510,18
		Project M		8.232.000,00	1.570.000,00	5.017.116,39	953.597,87	2.615.262,68	298.230,08	7.632.379,07	1.251.827,95
		Grand total		9.000.000,00	1.600.000,00	5.017.136,78	978.183,02	2.615.262,68	299.155,11	7.632.399,46	1.277.338,13
										767.979,61	4.489,82
										680.874,05	318.172,05
										1.448.853,66	322.661,87

3 Disbursement rate of the intervention

Source of financing	Cumulated budget	Real cumulated expenses	Cumulated disbursement rate	Note
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Source of financing	Cumulated budget	Real cumulated expenses	Cumulated disbursement rate	Note
Belgian Contribution (NEX)	7.632.399,46	7.632.399,46	93%	comparison with NEX capital rate
Contribution of the Partner Country	1.448.853,66	1.448.853,66	91%	
Other source				

4 Personnel of the intervention

Personnel (title and name)	Gender (M/F)	Duration of recruitment (start and end dates)
National personnel put at disposal by the Partner Country:		

Personnel (title and name)	Gender (M/F)	Duration of recruitment (start and end dates)
Do Khoa Danh - Director	Male	25/02/2010 - 30/06/2019
Vo Ngoc Minh - Vice Director	Male	25/03/2010 - 30/06/2019
Pham Thi Minh Thu - Vice Director	Female	17/01/2014 - 30/06/2019
Support personnel, locally recruited by BTC:		
1.Nguyen Thi Diem My - Project Secretary	Female	01/09/2015 - 30/06/2019
2.Nguyen Truong Hoang Diep - Environment and Climate Change Officer	Female	01/09/2015 - 30/06/2019
3.Nguyen Thi Cam Huyen - Chief Accountant	Female	01/04/2017 - 30/06/2019

Personnel (title and name)	Gender (M/F)	Duration of recruitment (start and end dates)
4. Nguyen Thi Bich Hanh - Archive - Cashier	Female	01/09/2015 - 30/06/2019
5. Bui Cao Cuong - IT specialist	Male	01/10/2014 - 30/06/2019
6. Tran Dang Anh Thu - Interpreter	Female	01/10/2014 - 30/06/2019
7. Hoang Thi Thanh Tam - Community Communication Specialist	Female	01/09/2017 - 30/06/2019
Training personnel, locally recruited: 1. Le Cong Hau - Driver	Male	01/07/2015 - 30/06/2019
International Personnel (outside BTC): None		
International experts (BTC): None		

5 Public procurement

No.	Package name	Bidding Method
1	Technical Institutional and Capacity needs Assessment and Capacity Building in IWRM, CC (TICA)	Competitive Bidding (Single stage, two-envelope)
2	Present - Future Climate Data and Analysis for Water Source Management in Ninh Thuan Province	National Competitive Bidding (Single stage, two-envelope)
3	Socio-Economic Survey in Dinh River Basin	National Competitive Bidding (Single stage, two-envelope)
4	Development of the Early Warning System in Dinh River Basin	National Competitive Bidding (Single stage, two-envelope)
5	Data Management and GIS Database Building	National Competitive Bidding (Single stage, two-envelope)
6	Vulnerability Assessment in relation to Climate Change and Climate Change Action Plan for Cai River Basin and Surrounding Areas in Ninh Thuan Province	National Competitive Bidding (Single stage, two-envelope)
7	The packages on training and capacity building	National Competitive Bidding (Single stage, two-envelope)
8	Water Resources Planning for Domestic Use and Economic Development towards Assured Water Security in Ninh Thuan Province under Drought and	National Competitive Bidding (Single stage, two-envelope)

No.	Package name	Bidding Method
	Climate Change Context	
9	Strengthening Management and Operation Capacity of Irrigation System	National Competitive Bidding (Single stage, two-envelope)
10	Strengthening Capacity for Integrated River and Reservoir Operation to Reduce Flood Risk and to Improve Drought Management	National Competitive Bidding (Single stage, two-envelope)
11	Research on the Impacts of Saltwater Intrusion at Downstream of Dinh River and Propose Adaptation Measures	National Competitive Bidding (Single stage, two-envelope)
12	Study to Promote Application of Advanced Water-Saving Irrigation Technology for Grape Vine in Ninh Thuan Province	National Competitive Bidding (Single stage, two-envelope)
13	Hydrological/Hydraulic Modeling of the Dinh River and Urban Drainage Modeling of Phan Rang - Thap Cham City	National Competitive Bidding (Single stage, two-envelope)
14	Extension and Reinforcement of Cau Ngoi Channel	National Competitive Bidding (Single stage, two-envelope)

6 Public Agreement

No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
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No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
1	Technical Institutional and Capacity needs Assessment and Capacity Building in IWRM, CC (TICA)	Institute of Water Resources and Environment in Southeast Asia	1,051,000,000	30/09/15	6 months	
2	Present - Future Climate Data and Analysis for Water Source Management in Ninh Thuan Province	Sub-Institute of Hydrometeorology and Climate Change	3,892,159,798	25/12/15	7 months	
3	Socio-Economic Survey in Dinh River Basin	Mekong Economic Consult Co., Ltd	1,868,587,160	01/04/16	3 months	
4	Development of the Early Warning System in Dinh River Basin	JV of Vietnam Academy for Water Resources and Vietnam Automation Technology and Construction Joint Stock Company	9,608,000,000	24/12/16	12 months	
5	Data Management and GIS Database Building	The contractor selection results are not yet available				

No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
6	Vulnerability Assessment in relation to Climate Change and Climate Change Action Plan for Cai River Basin and Surrounding Areas in Ninh Thuan Province	JV of Institute of Water Resources Planning and Institute of Water Resources and Environment Southeast Asia	4,279,669,000	10/11/17	12 months	
7	The packages on training and capacity building					
7.1	Training package No. 3: Training course on increasing general awareness in three fields under project and national study tours	Center for irrigation construction consultancy	794,166,000	05/02/18	6 months	
7.2	Training package No. 4: Training course on general technology and application skills for planning software in water resources management	Center for irrigation construction consultancy	1,247,967,000	05/02/18	6 months	
7.3	Training package No. 5: Training course on service organization management, planning and managing flooded plains in water resource management	Centre for Sustainable Development of Water Resources and Adaptation to Climate Change.	1,300,000,000	06/02/18	6 months	

No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
7.4	Training package No. 6: Training course on climate change	Centre for Sustainable Development of Water Resources and Adaptation to Climate Change.	831,343,000	06/02/18	6 months	
8	Water Resources Planning for Domestic Use and Economic Development towards Assured Water Security in Ninh Thuan Province under Drought and Climate Change Context	JV of Thudo Water and Environment Infrastructure Joint Stock Company and Institute for Hydro Power and Renewable Energy	3,234,700,000	26/05/17	12 months	
9	Strengthening Management and Operation Capacity of Irrigation System	JV of Viet Nam Academy for water resources and Vietnewday Joint Stock Company	9,681,579,000	25/12/17	12 months	
10	Strengthening Capacity for Integrated River and Reservoir Operation to Reduce Flood Risk and to Improve Drought Management	JV of Institute for Water and Environment and Hai Au Technology Joint Stock Company.	11,166,000,000	25/12/17	12 months	
11	Research on the Impacts of Saltwater Intrusion at Downstream of Dinh River and Propose Adaptation Measures	JV of Southern Institute of Water Resources Research and Institute for Hydro Power and Renewable Energy	2,705,628,607	24/12/16	12 months	

No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
12	Study to Promote Application of Advanced Water-Saving Irrigation Technology for Grape Vine in Ninh Thuan Province	Institute for Water and Environment	2,090,958,000	24/05/17	12 months	
13	Hydrological/Hydraulic Modeling of the Dinh River and Urban Drainage Modeling of Phan Rang - Thap Cham City	Vietnam Academy for Water Resources	8,970,000,000	25/01/16	12 months	
14	Extension and Reinforcement of Cau Ngoi Channel					
14.1	Package No. 15: Construction supervision	Hung Thinh Consultancy Company Limited	1,910,886,980		06 months	
14.2	Package No. 16: Civil Works Construction, Section K0+448 - K4+295	Transport Engineering And Development Investment JSC No. 208	54,259,700,656	29/06/18	06 months	
14.3	Package No. 17: Civil Works Construction, Section K4+602 - K7+202	Southern Construction Investment JSC	66,295,959,709	29/06/18	06 months	

No.	Name of Package	Name of Contractor	Contract Value (VND)	Contract Signing	Duration (month)	Note
14.4	Package No. 18-1: Construction of lighting system and equipment	Trung Viet Engineering Service Company Limited	5,330,144,924	28/9/2018	04 months	
14.5	Package No. 18-2: Construction of green trees	Huy An Company Limited	5,153,772,000	9/28/2018	04 months	
14.6	Auditing and finalizing for the "Extension and Reinforcement of Cau Ngoi Channel" project	Vietnam Australia Auditing LTD	970,000,000		60 days	

7 Equipment

Equipment type	Cost		Delivery date		Remarks
	budget	real	budget	real	
Panasonic air-conditioner	ODA	12.701.818		01/11/2013	

Equipment type	Cost		Delivery date	Remarks
Panasonic air-conditioner	ODA	10.538.000	01/09/2013	
Panasonic air-conditioner	ODA	10.538.000	01/09/2013	
Panasonic air-conditioner	ODA	11.580.000	01/11/2013	
Ricoh PM 4001 photocopier	ODA	169.090.909	01/11/2014	
Sony projector	ODA	23.909.091	01/03/2014	
Asus laptop	ODA	16.400.000	01/07/2015	
Car 85A - 001.92	ODA	851.886.931	01/03/2014	
Motorbike	ODA	26.454.545	01/02/2015	
Motorbike	ODA	26.454.545	01/02/2015	
Ipad mini with Retina display	ODA	18.090.909	01/06/2014	
Large wooden filing cabinet	ODA	20.000.000	01/12/2014	
Sofa	ODA	11.700.000	12/12/2014	
Ceiling mounted air conditioner	ODA	34.214.546	01/02/2016	
Project's website	ODA	454.171.417	01/05/2013	
Laptop Dell Intel core i3	ODA	10.263.636	03/05/2018	

Equipment type	Cost		Delivery date		Remarks
Samsung television	ODA	16.036.364		01/12/2018	
Toshiba laptop	ODA	9.954.545		23/01/2014	
Electric projector screen	ODA	3.500.000		04/04/2014	
Canon 3300 printer	ODA	4.681.818		04/04/2014	
Canon 3300 printer	ODA	3.727.273		19/04/2016	
Air cooler	ODA	6.335.455		15/08/2016	
Hot and cold drink machines	ODA	3.772.727		23/03/2016	
Amplify Nanomax, Paramax speaker, wireless microphone	ODA	14.780.000		09/03/2016	
Ariang player	ODA	6.300.000		09/03/2016	
Camera system in storage room	ODA	5.001.920		15/05/2018	
Canon printer	ODA	5.750.000		15/05/2018	
Canon printer	ODA	5.750.000		15/05/2018	
1TB hard disk	ODA	1.273.000		25/01/2019	
Buffalo storage server	ODA	12.999.800		25/01/2019	
VGA converter	ODA	819.000		27/09/2018	

Equipment type	Cost		Delivery date		Remarks
Digital voice recorder	ODA	2.490.000		27/09/2018	
Wireless Presenter	ODA	890.000		27/09/2018	
Server for using Bravo software	ODA	17.685.000		01/03/2017	

8 Original Logical Framework from TFF :

	Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
GO	<u>General Objective</u> To contribute to the sustainable development of Ninh Thuan Province	<u>Outcome indicators:</u> The capacity of the province has improved in terms of SD and the province demonstrates increased resilience to CC <u>Impact indicators:</u> All Provincial People's Committee members understand how CC affects their areas of management and decision-making responsibility	Weighted-reduction in losses (human, physical assets, costs) due to CC-related disasters – see Vulnerability assessment survey - Sustainable Development Provincial Plan linked to CC – see all <u>plans</u> and <u>decisions approved by the province</u> - All Decisions by the PPC refer to CC (where appropriate) and indicate how CC has been taken into account	<u>Assumptions:</u> - Acceptance by the PPC that they have a responsibility to take into account CC in their decisions - The PPC provides leadership in requiring all provincial entities/agencies to take into account CC in their operational processes - Adequate provincial budget is allocated after the completion of the BTC project to carry forward the outcomes <u>Risk:</u> Flux in PPC membership <u>Mitigation:</u> The project's emphasis is on developing institutional capacity and processes, and to training individuals
SO	<u>Specific objective</u> To support the provincial	<u>Outcome indicators:</u> The institutional capacity of the provincial	Weighted-reduction in losses (human, physical assets, costs)	<u>Assumptions:</u> Acceptance by the provincial institutions that they have a

	Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	institutional capacity in Ninh Thuan Province in integrated water resources management and urban development in relation to Climate Change	institutions responsible for water management and spatial planning has improved, in terms of CC preparedness, by the end of the project <u>Impact indicators:</u> - All water management and spatial plans have been designed to cope with the effects of CC - All directors/vice directors/heads/managers understand how CC affects their areas of technical and management responsibility	due to CC-related disasters – see <u>PPC annual reports on natural disasters</u> - Water Management and Spatial Plans have taken CC into account – see IWRM plan and MPS of province and Phan rang City - All staff understand and can demonstrate how CC may affect their work and the approaches (adaptation and mitigation) necessary to overcome these effects – see CD assessment versus evaluation reports	responsibility to take into account CC in their work - The provincial entities/agencies take into account CC in their operational processes - Adequate provincial budget is available after the completion of the BTC project to carry forward the outcomes <u>Risk:</u> Flux in directors/heads/managers etc <u>Mitigation:</u> The project's emphasis is on developing institutional capacity and processes, in addition to training individuals
R 1	<u>Result 1:</u> The capacities of the authorities of the province and Phan Rang city in terms of CC, IWRM and urban	<u>Process/output indicator:</u> - Needs assessment - Improved capability in water management and urban planning - M & E mechanisms and O & M modalities	- Needs Assessment Reports - Project progress report, training material and evaluation - Revised urban master plans and water management	<u>Assumptions:</u> - City institutions are prepared to update their urban planning and water management operational processes - Adequate provincial budget is available after the completion of the BTC project to carry forward the outcomes

	Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	development is improved with appropriate monitoring and evaluation mechanisms in place.	are developed <u>Outcome indicator:</u> Improved urban plans and water management operational processes are developed, approved and applied	operational procedures Standard M & E are in place See revised urban plans with integrated water management and sustainable urban planning principles for Phan Rang City, province website	<u>Risk:</u> - Reluctance of the City authorities to revised their 2nd draft of the urban master plan to produce a 3rd revision - Unclear lines between BTC project and the existing urban master planning consultants <u>Mitigation:</u> Formal agreement of how to proceed with the master plan revision
R 2	<u>Result 2:</u> A comprehensive strategy on CC is in place. It is based on various studies, including CC data and hydraulic modelling focused on operational impact on settlements of Dinh river catchment and the revision of the existing master plans	<u>Process/output indicators:</u> - Improved capability in CC and hydraulic modelling - Improved capability in integrated urban planning and water management - Improved understanding of how to incorporate CC Action Plan priorities within water and sanitation urban planning	- Data collection and baseline survey reports - CC and hydraulic models in place and functional - These models are being used to support greater CC resilience - CC Action Plan priorities incorporated within water and sanitation urban planning - CC and hydraulic model runs/projections - Integrated strategy on CC	<u>Assumptions:</u> - Use by the provincial institutions of CC and hydraulic models in their urban planning and water management operational processes - Adequate provincial budget is available after the completion of the BTC project to carry forward the outcomes - City Authorities accept CC Action Plan priorities and are prepared to incorporate into existing or new water and sanitation plans - Capable trained staff for operating the integrated reservoir management system are committed and stable

	Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	of Phan Rang city and its hinterland, with a focus on Dam Nai lake and Dinh river mouth, while key priorities of the CC action plan of the Dinh	- Improved capability in river basin water resource planning and management - Improve capacity for reservoir operations for both drought and flood management. <u>Outcome indicator:</u> - CC Action Plan priorities for the Dinh river basin and Phan Rang City related to water and sanitation is based on the results of the studies and CC modelling and appropriately used and applied - Improved capability in CC and hydraulic understanding within urban planning and water management - Revised urban masters plan integrating and mitigation	- Integrated urban plans revised for CC for both target areas - Revised approved CC action plan for the Dinh river basin and following PPC decisions - Urban water and sanitation plans are revised and in place for both target areas - Capacity building baseline initial survey and following monitoring surveys 4 water level gauges are operating on dams 1 water level gauge is operating in the Dinh River - The supervision system is connected to the gauges, programmed and operate correctly - Staff are able to manage the system, database, and interface system. - Staff are able to operate the integrated reservoir management and early warning system	<u>Risk:</u> - Reluctance of local authorities to share data - Lack of upgrading of software etc after the completion of the BTC project - Lack of relevance of the CC Action Plan priorities to both target areas - Delay of the existing project not allowing the additional developments - Hydrologic model is incomplete and/or not suitable - Trained staff is not suitable - No maintenance for water level gauges <u>Mitigation:</u> The project demonstrates the practical usefulness of modelling and subsequent planning in reducing CC impact The project demonstrates the practical usefulness of CC Action Plan priorities to Phan Rang city CC preparedness. PCU staff is committed and suitable for the project developments Technical advice on tender document for

Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	adaptation measures towards CC risks - Up-to-date information available for water resources assessment in Dinh River for present and future climate cases - Vietnamese actors are able to manage correctly the integrated reservoir management system as well as to modify and update the computerized system with additional measurement equipment.		climate, hydrologic studies are made by TSU Staff of DoNRE and/or MCDU also trained to the integrated reservoir management system (back-up staff) Advice needed from the TSU about the quality of climate, hydrologic and water balance studies.
R 3 <u>Result 3:</u> Priority strategic pilot activities are developed for lessons learned targeting Dam Nai lake or Dinh river mouth areas	<u>Process/output indicators:</u> Resilience measures piloted around Phan Rang city (physical infrastructure) <u>Outcome indicators:</u> Improved flooding condition around Phan Rang city	- Adaptation measures improve resilience to CC around Phan Rang city – see evaluation report - Standard O & M are in place – see manuals, evaluation reports O&M agency corporate plan	<u>Assumptions:</u> Adequate provincial budget is available after the completion of the BTC project to carry forward the outcomes <u>Risk:</u> Lack of funds to develop the priority project at a critical scale

	Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	Appropriate O & M modalities are in place			<u>Mitigation:</u> The project demonstrates the practical usefulness of CC Action Plan priorities to Phan Rang city CC preparedness while cooperation with GoV and donors community is developed during the course of the project
R 4	<u>Result 4:</u> The provincial CC strategy is supported by the active involvement of the communities and the private sector.	<u>Process/output indicators:</u> • Active engagement by communities most affected by CC • Active engagement by the private sector most concerned with CC impacts (e.g. financial products support to communities to improve housing and neighbourhood conditions) • System for equitable water resource allocation developed and implemented • Water resource infrastructure	• Awareness-raising events attended by community leaders and opinion-formers • Awareness-raising events attended by key private sector actors • See mass-media, campaign assessment surveys, WU and Education department reports • Practical measures to develop resilient communities being undertaken by communities in relation to CC • Practical measures being undertaken by private sector in relation to CC	<u>Assumptions:</u> • Communities are willing to be engaged • Adequate incentives are available after the completion of the BTC project to carry forward the outcomes • General approval by the local WUAs and Communes about the formation of the WUA Federation <u>Risk:</u> Key community leaders and opinion-formers are not involved Low quality of manuals or inappropriate technically Confusion about legal arrangements for

Logic of the intervention	Indicators	Means and source of verification	Assumptions, Pre-conditions, and Risks
	investment and plan and developed approved. - Additional support to poor households affected by CC with development of resilient measures - WUAs are developed and functioning well. <u>Outcome indicator:</u> Improved understanding of CC at community and private sector level All WUAs are created in the Province and integrated to the WUA Federation. The WUA Federation is able to operate correctly and independently of any other assistance (out of IMC cooperation).	- Initial vulnerability assessment and following monitoring - The WUA Federation is formed and operating with a legal basis - WUAs are receiving support for capacity building - Communes and WUAs are aware about procedures regarding the Provincial Federation - The WUAs Federation is equipped with office equipment - Farmers and household are aware about function and utility of WUAs organization - The manuals for farmers and household are available and published.	WUA Federation Lack of uptake in public and private sectors <u>Mitigation:</u> The project demonstrates the practical usefulness of resilience-building measures Advice needed by TSU about content and quality of the manuals during preparation. The project organize and follows up the process of first composition for the management and staff of the WUA Federation Establishment through the statutes of a maximum term of office for direction of WUA Federation (between 3 and 5 years before renewing by vote of the local WUAs).

9 Complete Monitoring Matrix

No.	Outcome - Indicators	Baseline value	Final value		Annual values												Unit of measure-ment						
			Target	Result	2014			2015			2016			2017				2018			2019		
							Result	Target	Result	Target	Result	Target	Result	Target	Result	Target		Result	Target	Result	Target	Result	
I	IMPACT : To contribute to the sustainable development of Ninh Thuan																						
I 1	Number of CC actions conducted as a consequence of PPC decisions	3	51	19	3	3	8			10					12	13	15					Action	
I 2	Sample evidence of increased resilience of sectors			4											0	4							
OC	OUTCOME : To support the institutional capacity in Province in integrated water resources management and urban development in relation to Climate Change.																						
OC 1	Number of documents issued which address CC	4	89	44	9	4	12			16			9	26	21	9	27					Document	
OC 2	Number of trained stakeholders or trained staff who contribute newly acquired CC knowledge to decision-making processes	0	381	118	0	0	131			120			0	7	130	111						Department/ People	
OC 3	% of provincial budget is invested in activities related to CC	15,4%	22,5%	36%	19,4%	15,4%	16,9%			18,6%			1,84%	13%	20,5%	36%	22,5%					%	
OC 4	Measurable increase in institutional capacity with respect to assessment criteria from the TICA	First TICA will provide the baseline value	No target setting required		n/a	n/a	No target setting required			No target setting required			n/a	n/a	No target setting required	n/a	No target setting required					Descriptive	

No.	Outcome - Indicators	Baseline value	Final value		Annual values												Unit of measurement
			Target	Result	2014		2015		2016		2017		2018		2019		
					Result	Result	Target	Result	Target	Result	Target	Result	Target	Result	Result		
O	OUTPUT 1 : The capacity of the authorities of the province in terms of Climate Change, Integrated Water Resources Management and Urban Planning are improved with appropriate monitoring and evaluation mechanisms in place.																
O 1.1	Number of staff trained on climate change, integrated water resource management and/or urban development	0	942	1016	137	117	435	0	295	0	510	469		293	People		
O 1.2	Average change in scores on entry and exit tests	0%	25%	13%	n/a		10%	0%	15%	0%	20%	13%	25%		%		
O 1.3	Appropriate equipment and software systems are in place	0	11	11	0	0	1	0	9	5	1	5	0	1	System		
O 1.4	Responsiveness of data (CC-IWRM & UD) management system to the provincial users	0%	80%	61%		59%	65%	58,3%	70%	46%	75%	61%	80%		%		
O 1.5	Coordination and communication mechanism responds to the knowledge management need of the provincial authorities	0%	90%	76%		71%	75%	74,4%	80%	74%	85%	76%	90%		%		
O 1.6	New and relevant information is available from the expanded hydrological & meteorological monitoring network	0%	80%	74%			50%	0%	60%	0%	70%	74%	80%		%		
O	OUTPUT 2 : A comprehensive strategy on CC is in place																
O 2.1	No. of conducted research	0	4	4	-	-	1	1	3	3					Studies		

No.	Outcome - Indicators	Baseline value	Final value		Annual values												Unit of measure- ment
					2014		2015		2016		2017		2018		2019		
			Target	Result	Result	Result	Target	Result	Target	Result	Target	Result	Target	Result			
O 2.2	A CC adaptation action plan is approved	0	1	1	-	-	-	-	1	0	-	-	-	1	Plan		
O 2.3	Master plans (provincial, cities/town) revised with regard to CC	0	1	0	-	-	-	-	1	0	-	-	-	-	Master plan		
O 2.4	Prioritised proposals on CC are developed	0	tbc	53	0	0	tbc	tbc	tbc	0	tbc	0	tbc	53	Proposals		
O 2.5	A Study on River basin water resource assessment with consideration of climate change is completed	0	1	1	0	0	0	1	0	-	-	-	0	1	Studies		
O 2.6	A reservoir management system for integrated operating rules to seek a balance between optimising water availability and reduce wet season flood risk is developed and implemented	0	1	1	-	-	-	-	-	-	1	0	-	1	Systems		
O	OUTPUT 3 : Priority strategic pilot activities are developed for lessons learned																
O 3.1	No of (pilot) investments implemented, complying with CC adaptation specifications	0	3	1	-	-	-	1	0	2	1	-	-	-	Investment		
O 3.2	Effective O&M is implemented for each priority investment	0	3	-	-	-	-	-	-	1	0	2	0	0	Model		

No.	Outcome - Indicators	Baseline value	Final value		Annual values												Unit of measurement
					2014		2015		2016		2017		2018		2019		
					Target	Result	Result	Result	Target	Result	Target	Result	Target	Result	Target	Result	
O 3.3	No. of lessons-learned documents prepared on innovative features of the priority investments and of other aspects of the Project	0	8	5	-	0	2	3	2	1	2	1	2	2	Documents		
O	OUTPUT 4 : The provincial CC strategy is supported by the active involvement of the communities and the private sector.																
O 4.1	A public CC awareness raising strategy is developed	0	1	1	-	-	1	1	-	-	-	-	-	-	Strategy		
O 4.2	A disaster early warning system is developed	0	1	1	-	-	-	-	1	0	0	1	0	1	System		
O 4.3	No. of beneficiaries of newly upgraded CC resilient houses	0	282	0	-	-	-	-	138	0	144	0	0	0	People		
O 4.4	No. of new households participating in CC credit program	0	230	0	-	-	-	-	115	0	115	0	115	0	Households		
O 4.5	No. of people participating in newly established committees	0	92	1,374	-	-	92	84	0	47	0	1,243	0	1,243	People		
O 4.6	Sample evidence of attempts to involve communities and/or private sector	0	No target setting required	55	-	10	No target setting required	2	No target setting required	11	No target setting required	32	No target setting required	No target setting required	Evidence		
O 4.7	Sample evidence of changed behaviour due to increased awareness	0	No target setting required	6	-	-	No target setting required	1	No target setting required	3	No target setting required	2	No target setting required	No target setting required	Evidence		

No.	Outcome - Indicators	Baseline value	Final value		Annual values										Unit of measurement
					2014		2015		2016		2017		2018		
			Target	Result	Target	Result	Target	Result	Target	Result	Target	Result	Target	Result	
O 4.8	Effective Pilot of a performance-based service delivery contract between the IMC and the asset owner allocated by the provincial authorities in one area (one or two district) is implemented	0%	100%	100%	-	20%	0%	60%	0%	100%	0%	0%	0%	100%	%
O 4.9	Effective support to the Water User Associations in one pilot district is completed.	0%	100%	100%	-	20%	0%	60%	0%	100%	60%	0%	0%	100%	%
O 4.10	Sample evidence of changed behaviour due to increased awareness on best practices for river health and water use	0	No target setting required	0	-	No target setting required	0	No target setting required	0	No target setting required	0	No target setting required	No target setting required	No target setting required	Evidence

10 Tools and products

- **(Scientific) Publications**

The publications include handbooks on water-saving irrigation technology and handbooks on saltwater intrusion and mitigation measures. These publications are the result of two studies on “Saltwater intrusion” and “Water-saving irrigation for grapevine”. The project has updated information, consulted relevant stakeholders and produced publications. The above documents are communication tools for local people of Farmers' Association and Women's Union.

- **Capitalization reports**

Assessment report on change in people's awareness and behavior on climate change. The report is the survey's result on community's knowledge - attitude - behavior on climate change. Through surveys, in-depth interviews, group discussions, officials

and people in the project area have learned lessons in communication. Climate change is a popular phrase but people's knowledge of climate change is different and limited for people with different levels of education in the same community. The using of communication picture set has helped people understand terms such as climate change, greenhouse effect, adaptation or mitigation of climate change impacts. The picture set has been replicated in the Women's Union in 06 districts and 01 city in the province.

- **Audio-visual material**

Audio-visual materials include: a communication picture set of climate change, the greenhouse effect and water resources; 3D cartoon on climate change; Video on drought and solutions in Ninh Thuan province; Video on climate change in Ninh Thuan province; Posters for water resource protection, Posters and flyers for limiting the use of plastic bags and products; Sticker on saving energy, etc.

- **Other resources**

Other resources include website: nguonnuoc.org.vn, MCDU's page Facebook. All information, activities, products and studies related to the project are updated on the website.

- **M&E approach/system: Monitoring Matrix**

- **Methods**

Bottom-up approach and planning method was applied. The project supports capacity building for stakeholders and key communication officers in the localities. Local officials develop plans and coordinate in project implementation.

