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Prepared by PM Group and ASEC Consultants

For the Provincial People's Committees of Quang Binh, Quang Nam, and Thanh Hoa, and
the Asian Development Bank

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Acronyms, Abbreviations & Units

3Rs	Reduction, Recycling, Reuse
AAGR	Average Annual Growth Rate
ADB	Asian Development Bank
ADF	Asian Development Fund
AH	Affected Households
AIC	Average Incremental Cost
ALC	Active Leakage Control
AP	Affected Persons
CAP	Corrective Action Plan
CC	Climate Change
CCAP	Climate Change Adaptation Plan
CCESP	Coastal Cities Environmental Sanitation Project (World Bank financing)
CIPR	Construction Investment Project Report
CPC	City Peoples Committee
DARD	Department of Agriculture and Rural Development
DDR	Due Diligence Report
DMA	Demand Management Area
DMS	Detailed Measurement Survey
DOC	Department of Construction
DONRE	Department of Natural Resources and Environment
DP	Displaced Persons
DPI	Department of Planning and Investment
DMF	Design and Monitoring Framework
EA	Executing Agency
EGM	Effective Gender Mainstreaming
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ENPV	Economic Net Present Value
FMA	Financial Management Assessment
FSR	Feasibility Study Report
GAP	Gender Action Plan
GDP	Gross Domestic Product
GOV	Government of Vietnam
IA	Implementing Agency

IEE	Initial Environmental Examination
IOL	Inventory of Loss
IPCC	Inter -Governmental Panel on Climate Change
JSC	Joint Stock Company
LRAP	Local Resilience Action Plan
MNF	Minimum Night Flow
MOF	Ministry of Finance
MOLISA	Ministry of Labor, Invalids and Social Affairs
MPI	Ministry of Planning & Investment
NGO	Non-Government Organization
NPV	Net Present Value
NRW	Non Revenue Water
NTP	National Target Program
OCR	Ordinary Capital Reserve
PAM	Project Administration Manual
PPC	Provincial Peoples Committee
PPT	Parts per thousand (1 ppt salinity = 2 g/l)
PPM	Parts per million (1 ppm salinity = 2 mg/l)
RAP	Resettlement Action Plan (WB)
RP	Resettlement Plan
SCADA	Supervisory Control And Data Acquisition
SCCC	Steering Committee on Climate Change
SEA	Strategic Environmental Assessment
SEDP	Socio-Economic Development Plan
SPS	Safeguard Policy Statement (ADB 2009)
UDA	Urban Development Area
UN	United Nations
URENCO	Urban Environment Company
VHLSS	Vietnam Household Living Standards Survey
VWU	Vietnam Women's Union
WB	World Bank
WSC	Water Supply Company (as in Quang Nam WSC)
WSD	Water Supply Division (as in Hoi An WSD of Quang Nam WSC)
WSZ	Water Supply Zone

Executive Summary & Conclusions

This Final Report is one of a series of “milestone” reports provided by the Consultant for this assignment and has been divided into 6 major volumes including accompanying appendices as summarised below.

Volume 1	Provides an overall summary of the assignment and the main findings in relation to project rationale, project description and financing/investment plan, social and environmental impacts and economic and financial analysis
Volume 2	Contains the Project Administration Manual including the project implementation plan, procurement plan and implementation arrangements for the different social and environmental action plans
Volume 3	Includes the two IEEs (incorporating detailed EMPs) for the two physical components
Volume 4	Contains the Resettlement Plans for each physical component and Due Diligence Reports for associated facilities
Volumes 5 and 6	contain the FSRs (in accordance with the government’s Decision 48/2008/QĐ-ttg on Common General Guidelines on Feasibility study Preparation for Official Development Assistance Projects Funded by Five Banks issued on 4 March 2008) covering components in relation to Hoi An Water Supply Resilience, Hoi An Climate Change Adaptation and Dong Hoi Urban Environment and Climate Change Adaptation respectively. These reports include the consultants technical due diligence reviews of the project components

Project Rationale & Sector Overview

The Sector Overview developed during the previous phases of the assignment has been significantly enhanced with a consideration of urban planning, socio-economic development and also demand for urban services to provide a robust justification for the selection of project sectors and components. In terms of project rationale, the selection of the two project cities, notably Dong Hoi and Hoi An has been justified in relation to good governance, exposure to climate change impacts and also significant activities of the two cities and provinces in relation to climate change adaptation planning and green growth initiatives (particularly Quang Nam/Hoi An)

Dong Hoi City is a Class III City with a population of 113,900 (census 2010) targeting Class II City status (population over 200,000) in 2015 or shortly thereafter. It is the administrative capital of Quang Binh Province and is a major economic and tourism centre in the northern central region of Vietnam. Dong Hoi’s GDP is split between trade/service and industry/construction with agriculture and fishery an increasingly minor contributor.

Previous planning documents (both the 2007 and 2012 masterplans) project extremely large increases in population. For example, whereas Dong Hoi is growing at a little over 1.5% today, population was projected in the 2012 masterplan to grow at almost 4% per year over the period 2010-2025. Such increases are unlikely to occur and more moderate growth projections have been used for total population taking into account both natural growth rate and a small amount of inward migration from neighbouring areas. For Dong Hoi, development of tourism from a less than 4% of current GDP is understood to be a major

developmental target of the provincial authorities. The proposed component for financing under this project is seen to be a key building block in this development.

Review of the water supply sector demonstrates that current water supply capacity is limited primarily by a problem of resources in relation to the Hai Thanh water treatment plant and that expansion of overall supply capacity (through both remediation of the resource constraints of the aforementioned plant and/or expansion of the ADB financed plant Phu Vinh) will be important for the continued development of the proposed Bao Ninh resort area and continued growth of the city as a whole.

In terms of both wastewater and solid waste, Dong Hoi city has benefitted from funding from the World Bank to upgrade service provision in the core city. In relation to wastewater there is a need to provide for connections and missing tertiary sewers to enable the full benefits of the future wastewater treatment plant to be realised; development and linking of the Bao Ninh area to the Duc Ninh treatment plant would also be a future priority. With regard to stormwater drainage, previous investment programmes have focussed on upgrading the main city combined wastewater systems and the open canals. For the Bao Ninh area, the need to employ costly stormwater sewerage is questionable given the high infiltrating capacity of the underlying sand; instead an innovative system involving on-site reduction, infiltration and detention storage has been proposed.

Flooding linked to typhoons is a common, almost annual occurrence. Recent floods in 2010 created widespread damage in Dong Hoi and loss of life. Climate Change through raising sea levels, possible increasing intensity of typhoons and therefore increased rainfall intensity and storm surge related wave set-up will most likely exacerbate these impacts. The current World Bank financed project is addressing many of the structural issues in relation to storm drainage in the old city centre. However, key areas for focus in this project are improvements of flood protection and erosion of the coastal dunes and the Nhat Le estuary and river and the development of non-structural measures including dune protection and coastal zoning, flood forecasting and early warning systems.

Hoi An is located in Quang Nam province and is home to approximately 90,000 inhabitants and is projected to grow to almost 110,000 by 2020 and 130,000 in the long term. It is recognized as a World Heritage Site by UNESCO. Hoi An Ancient Town is an exceptionally well-preserved example of a South-East Asian trading port dating from the 15th to the 19th century; this tangible heritage is a unique feature in South East Asia, amongst which the "Japanese Bridge" (16th-17th century) is the best known feature. The bridge (Chùa cầu) is a unique covered structure built by the Japanese, the only known covered bridge with a Buddhist pagoda.

Hoi An's GDP is dominated by the tourist sector (tourism per se represents 17% and the tertiary sector as a whole almost 65%). Total visitors numbered almost 1.5 million in 2011 and is set to grow to almost 2.4 million by 2020 and over 3 million in the long term. This in part reflects its geographic location near to Danang favouring international transport and also the increased amount of local tourist attractions. Hoi An consequently has a large and growing tourist infrastructure which needs to be rapidly supported by improved urban environmental services and protected from the impacts of flooding and saline intrusion, both of which are likely to be exacerbated by climate change.

Hoi An is currently expanding its water supply infrastructure (treatment and networks) to meet the existing and future demands; these expansions would appear to be sufficient for a number of years. However, there are known deficiencies in the current resource (high costs and salinity issues) and unaccounted for water is relatively high (around 30%).

A benchmarking study has been undertaken comparing the performance of Quang Nam WSC and Hoi An WSD with the best performing water utilities in Vietnam (commonly quoted as Hai Phong and Vung Tau) and in the region (for example, Phonh Penh WSC). In terms of key indicators, such as staff per connections and NRW (both in terms of % and l/connections/day) Hoi An WSD is over double those of the better performing WSC in

Vietnam. This has a clear impact on the WSC profitability as illustrated by the cost:revenue ratio which is also high in comparison.

A particularity of Hoi An's water supply is the dominance of the tourist sector (hotels use over 50% of all water sold at present) with the largest 30 consumers consuming almost 1/3 of all water sold in Hoi An providing almost 50% of overall revenues. Of particular note are the largest resorts which have very large water usages averaging 1m³/tourist/day. In addition only 30% of residents of Hoi An are connected to the water supply system, with the remainder using wells increasingly affected by salinity and pollution from untreated wastewater.

Two alternative water demand scenarios were developed: Business As Usual Scenario utilising existing water supply performance and targets as included in previous studies; a "Green Growth Scenario" incorporating activities such as enhanced NRW reduction, water demand reduction through tariff increases and water conservation measures in relation to the resort/hotel zones following the key indicators of the best Vietnamese and regional water utilities. These comparisons show that whereas the short term increase in water treatment capacity is wholly justified, the need for future increases could be reduced/delayed via the adoption of the Green Growth Scenario.

The main existing resource for Hoi An is the Vinh Dien river linking the Thu Bon river to the Han River near Danang. This resource has become increasingly impacted by salinity most significantly since 2012 with the commissioning of the Dak Mi 4 reservoir which has changed significantly the balance of low flows in the Vu Gia-Thu Bon river basin and with increasing sea levels. However, with this change conditions on the Thu Bon river have become less critical with the salinity front now observed at about 15km from the estuary mouth.

These observations are supported by simulation modeling undertaken by local institutes justifying the use of the Thu Bon instead of the Vinh Dien river as the most reliable resource for Hoi An. A significant added advantage is that the existing Lai Nghi reservoir site is close to the newly constructed water treatment plant, thereby reducing significantly raw water pumping costs.

While existing conditions indicate there is little need for additional bank side storage, simulations suggest there is a risk that salinity will move upstream. To counter this, it is proposed to allow up to 12 days of total storage covering the existing agricultural needs and the future domestic water supply needs. This implies an overall total storage of approximately 1.2 million m³, requiring the dredging of approximately 530,000 m³ from the existing reservoir.

Recent floods in 2009 created widespread damage in Hoi An and loss of life. As per Dong Hoi, climate change will most likely exacerbate these impacts. Key areas for focus in this project are improvements of flood protection and erosion notably in the Cua Dai beach area, the development of non-structural measures including flood forecasting and early warning systems and the development of safe evacuation routes in case of excessive flooding.

Hoi An has developed both a CCAP (with assistance from UN-Habitat) and strategic plans integrating green growth and eco-city concepts. While these documents form part of Hoi An's future development visions, the urban masterplan does not reflect these; in addition the existing piece-meal development of Hoi An's infrastructure testifies to a lack of coherence between these plans and the need for a more integrated climate sensitive approach to infrastructure development in the city. The proposed project while providing key upgrading of water and urban infrastructure in Hoi An will also enable Quang Nam Province and Hoi An city to implement their previous initiatives by providing key support in climate change and flood protection.

Analysis of the flooding statistics of Hoi An show that there has been a marked shift in flood levels over the recent period; in the period 1976 to 1995 there were no floods over 2.5 m whereas from 1995 to 2012 there have been 6 of which 4 were higher than 3m. While climate change in relation to rising sea levels has potentially contributed to this change, the

major cause is related upstream interventions and changes in the operation of the Thu Bon-Vu Gia river basin. To protect the city of Hoi An via conventional structural measures would require raising dykes (and perhaps land levels) up to 4 m according to national standards.

While the project advocates raising land levels and major access roads to around 2.5-3m in order to climate proof these investments, raising significantly above this height will engender very high investments and prove unsustainable in the long term. Instead the study demonstrates that the solution to Hoi An's flooding problems lies in a better management of the upstream river basin and the recognition that Hoi An will need to continue to "live with floods". A number of key interventions have been tested involving better regulation of the Thu Bon-Vu Gia river basin which it is proposed to evaluate in more detail during the Loan Implementation as part of the flood warning technical assistance.

The most important issue with respect to coastal erosion is the area to the north west of the Thu Bon estuary. These areas are subject to a variety of meteorological and oceanographic conditions most notably typhoons numbering between 4- 6 per year accompanied by storm surge, high winds and waves.

Analysis of satellite imagery indicates that prior to 2004 the coastline in this region appeared relatively stable; however, since this time the coastline has retreated significantly by up to 150 m in some places, severely affecting the resort zone. This impact has been ascribed largely to the dredging of the Thu Bon estuary and spit and the destruction of the coastal dune (both associated with resort construction). Other influencing factors include the loss of sediment from the upstream catchment due to the installation and operation of reservoirs. In recent years, this erosion appears to have reduced and a new equilibrium has been reached.

With respect to the proposed coastal protection measures consisting of the extension of the existing embankment, this is likely to exacerbate erosion due to reflection of waves at the toe of wall. Rather than adopting such an approach it is proposed to undertake a monitoring exercise leading to the development of more refined solutions involving most likely groyne structures and perhaps offshore breakwaters.

Project Proposal

The project's expected impact will be increased socio-economic development through increased and sustained tourism and improved urban environment in Dong Hoi and Hoi An. The outcome of the project will be improved access to climate change resilient urban infrastructure in Dong Hoi and Hoi An. By adopting a holistic approach to coastal city development, the project will support the Government of Vietnam and more particularly the Provinces of Quang Binh and Quang Nam to (i) improve wastewater collection and treatment, (ii) enhance flood protection and erosion control, (iii) protect water resources from saline intrusion, (iv) climate proofing urban development, (v) improve the financial sustainability of water and wastewater utilities and (vi) strengthen the capacity of existing government entities and urban environmental utilities.

Incorporating lessons from similar projects, implemented in Vietnam and elsewhere in East Asia, the Project will adopt an integrated approach to address the current constraints in flood management, wastewater, environmental management, and urban development. Specifically, the proposed Project Outputs, are:

Output 1: Hoi An Urban Environment & CCAP

- *Urban Area Extensions & Green Eco City Development*
 - *Urban infrastructure in development zones (including sustainable urban drainage systems)*
 - *Extension of wastewater system to Development & Resort Zones*
 - *Access Road to Cua Dai Bridge*

- Road 608
- *Integrated Flood Management & Coastal Protection*
 - *Phap Bao Detention Basin and associated stormwater sewerage*
 - *Dykes and embankments integrating road projects (eg Road 608, Coco River Protection dykes)*
 - *City flood warning system (linked to River Basin flood warning system)*
- *Water Source Protection/Utility Efficiency Project*
 - *Water Source Protection/Conjunctive Use Scheme (Lai Nghi Freshwater Reservoir)*
 - *Urban Utility Efficiency projects (NRW improvements and other for Water supply)*

Output 2: Dong Hoi Urban Environment & CCAP

- *Bao Ninh Urban Development*
 - *Wastewater networks for Bao Ninh*
 - *Stormwater Systems (sustainable urban drainage systems)*
 - *Road extensions on Bao Ninh*
 - *Bao Ninh Masterplan (possible retroactively/grant financing)*
- *Integrated Stormwater & Flood/Erosion Management*
 - *Bao Ninh/Nhat Le Estuary Coastal Erosion Protection including dune complex regeneration and zoning*
 - *Urban flood warning system (linked to regulating reservoirs)*
- *Wastewater Management in the Old City Area*
 - *Connections, Tertiary Sewers & Limited primary systems*
 - *Monitoring of pump stations and CSOs*

Output 3: Capacity Building Component

- Climate Change Adaptation Planning
- Project Management
- Utility Capacity Building

Institutional Analysis & Capacity Building

On the basis of different technical, institutional, procurement and financial assessments a comprehensive project management and technical support package has been developed covering both project cities. The existing project management units (PMUs) of the two IAs (Quang Nam WSDC and Quang Binh URENCO) will be strengthened through staff training, and the provision of vehicles and equipment. Relevant staff from each PMU will receive training at the start of the Project in financial management and reporting, and ADB disbursement and procurement procedures. The PMUs will establish and maintain a project performance management system (PPMS) to monitor project implementation and performance in meeting project targets. An international project implementation specialist will be recruited to provide technical advice to PMUs in technical design review, procurement, and project supervision. International and national experts in the following disciplines will also be provided to support project management: (i) civil engineering/project

supervision; (ii) procurement/contract management; (iii) climate change/urban planners; (iv) financial management; (v) resettlement supervision; (vi) environmental monitoring and (vii) gender training.

The support contract will also provide funds to increase public awareness by launching Information Education Communication (IEC) campaigns to promote the connection of households to the public water supply and sewer system and the provision of a revolving fund in each city to support subsidies for household connections.

Demonstration Opportunities

The project has a number of potential demonstration or piloting features, notably

- development of climate change adaptation measures for water and wastewater utilities in Vietnam through the piloting of climate proofing measures as part of the Dong Hoi Wastewater and Hoi An Water Supply subcomponents;
- climate change adaptation and promoting green city development through the Dong Hoi Bao Ninh and Hoi An Green Eco City subcomponents;
- improved flood management and climate change adaptation for Vietnamese coastal cities through the flood management subcomponents including both structural and non- structural measures;
- improving project delivery/preparation in Vietnam, through the parallel development of ADB project documentation together with government documentation and the association of the Vietnam Development Bank (VDB) early in project processing;
- improved access to funding in the urban environment sector through the piloting of OCR and the development of flow of funds and repayment mechanisms (including enhanced tariff mechanisms for wastewater and development of approaches for climate changes)

Environmental & Social Safeguards

A screening exercise carried out for both Dong Hoi and Hoi An concluded that the project components will have minor impacts on the environment with the recommendation that the project may be classified as Category B project in accordance with ADB Safeguard Policy Statement (SPS). In this respect IEEs have been prepared as a separate document detailing impacts and mitigation measures. The main environmental impacts will happen during the construction activities. Because of the project being located in an urban environment, the risk of nuisances is high: traffic congestion, temporary loss of access, community facilities temporary disruption, noise, engine gas and dust release may temporarily disturb the nearby communities. However, recommendations formulated in the EMP combined with a solid contractual framework and an effective inspection of construction sites will reduce these risks to an acceptable level.

With respect to resettlement the components have been classified as Category C in Dong Hoi due to the relatively minor physical and economic displacement impacts. There is no physical displacement associated with any of the components, except for Road N°36. This new road planned for the Bao Ninh Peninsula is aimed at improving the connectivity between Bao Ninh Peninsula and Dong Hoi City which is intersected by the Nhat Le River, connectivity on the Bao Ninh Peninsula itself and also serves as an alternative evacuation route in the event of extreme weather events (notably typhoons); to avoid widening existing roads that would result in a large amount of physical displacement, a new 36 meter wide road is proposed. This road known as Road No. 36 will run for 5.8 kilometers and traverse five villages. However, the proposed road requires the exhumation, relocation and reburial of an estimated 1,100 individual graves out of an estimated total of 2,100 individual graves. Some affected graves contain as many as 60 individual graves of deceased family members while some graves contain the remains of only one deceased family member. This impact might be further reduced as a result of detailed design but as a precautionary principle the

current estimate is accepted as the upper impact level. Due Diligence has been undertaken on two associated facilities covering both environmental and social safeguards, namely the Nhat Le 2 bridge and the Duc Ninh WWTP. With regard to previous resettlement plans, a number of corrective measures have been proposed in the DDRs. Resettlement costs as a percentage of civil works have been estimated at almost 6%, which have been reduced dramatically from the initial estimate at the time of the project proposal.

For Hoi An there are 159 severely affected households (18.8% of total AHs) that according to the ADB SPS 2009 are defined as such if they lose more than 10% of their productive assets. A range of income restoration measures based on an assessment of practical and sustainable activities have been identified in the Resettlement Plan.

There are some other safeguard measures that are necessary such as the requirement that compensation is to be paid equally to AH males and females and the latter also be afforded the opportunity to participate in income restoration measures identified in the RP that are not simply directed at male APs. These components will be monitored in accordance with the provisions of the RP to ensure APs have been adequately consulted in the design of this component, they have a documentary record of entitlements payable by each AH and this record is made public, APs are able to seek grievance redress, and the component is monitored to ensure APs are not worse off as a result of the component and ideally better off. Further details of the impacts, compensation and livelihood restoration proposals for the affected persons are provided in the detailed RP for Hoi An. Resettlement costs as a percentage of civil works have been estimated at almost 10% excluding costs for resettlement already disbursed associated with the two road projects.

Investment & Financial Plan

The project is estimated to cost \$134.43 million, including taxes of \$10.43 million, physical contingencies of \$10.86 million, price contingencies of \$4.18 million, and financial charges during implementation of \$6.14 million. .

Project Investment Plan

(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Dong Hoi Urban Environment and Climate Change Adaptation	32.08
2. Hoi An Urban Environment and Climate Change Adaptation	75.87
3. Project Management and Climate Change Support	5.31
Subtotal (A)	113.26
B. Contingencies^c	15.03
C. Financing Charges During Implementation^d	6.14
Total (A+B+C)	134.43

^a Includes taxes and duties of \$10.43 million to be financed from government resources other than taxes and duties on equipment provided as part of grant-financed technical assistance, which will be financed from grant resources.

^b In mid-2013 prices.

^c Physical contingencies computed at 10% for civil works, field research and development, training, surveys, and studies; and 5% for grant-financed technical assistance. Price contingencies computed at 1.0% for 2015 and 1.4% for 2016 to 2018, and 1.5% thereafter on foreign exchange costs and 8.0% for 2015 and 7.5% thereafter on local currency costs; no price contingencies were included for grant-financed technical assistance; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for the ADB loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.4% and a maturity premium of 0.1%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount..

Source: Consultant's estimates from various sources. (Client Design Institutes)

The government has requested a loan of \$100 million from ADB's ordinary capital resources and grants of \$11.16 million from various sources, to be confirmed during loan processing, to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility including a 0.4% spread and a maturity premium of 0.1%, a commitment charge of 0.15% per year the interest and other charges during construction to be capitalized in the loan, and such other terms and conditions set forth in the draft loan and project agreements. The ADB loan will be used to finance 100%, excluding taxes and duties, of the cost of agreed civil works, equipment and consulting services for reducing non-revenue water and introducing the management information system in Hoi An, as well as 100% of financing charges on the loan. Grants will be sought to cover (i) project management and climate change capacity building; (ii) flood management and the early warning system; (iii) dune rehabilitation and zonation; (iv) detailed design; and (iv) gender support. The provincial governments will finance 100% of the cost of resettlement and the central government will finance 100% of taxes and duties.

Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	100.00	74.4
UCCRTF	5.20	3.9
PPSSF	1.75	1.3
Government (national and provincial)	27.48	20.4
Total	134.43	100.00

Source: Consultant's estimates

Economic Analysis & Rationale

Dong Hoi and Hoi An both represent rapidly developing mid-sized cities in Viet Nam, albeit at different stages of development. Both currently focus of tourism as a main driver of development although Hoi An has currently progressed much further along this path. To promote the planned expansion in tourism both cities will need to ensure that existing urban infrastructure is completed in a sustainable manner, in particular the wastewater collection and treatment system in Dong Hoi and the water supply system in Hoi An. In addition there is a need to develop new urban areas, Bao Ninh in Dong Hoi and Co Co urban area in Hoi An, that will support the needs of increasing tourism both directly and indirectly. Hoi An also needs to address the issue of flood management in many areas of the city and particularly with respect to Phap Bao lake and Provincial Road 608. With increasing attention to expected climate changes it is critical that these interventions should be implemented with careful attention to climate change adaptation.

The Dong Hoi investments will assist the city both in obtaining the envisaged benefits from the substantial investments that have already been made in wastewater collection and treatment infrastructure, and in developing urban infrastructure in Bao Ninh to support development of the tourism industry. Without the support of the project, and particularly the grant-aided hydrodynamic study and dune restoration, it is unlikely that Bao Ninh will be developed in a sustainable way. With project support, Bao Ninh urban area is expected to be an example of climate change resilient urban development in a coastal area, that can be a model for replication elsewhere.

In Hoi An, as the city's resident and tourist population continues to expand and living standards increase, the demand for domestic and industrial water is expected to increase. If demand cannot be satisfied, the rate of economic growth will decline with negative impacts particularly on tourism. Water availability is also affected by climate change, which has potential to increase salinity of raw water sources, and the current high rates of non-revenue water. The project will implement a well-developed and integrated approach to improving water availability through upgrading of existing facilities, in particular the Lai Nghi reservoir, and reducing the wastage by reducing water delivery losses. The project will also address the issues of flooding and sustainable development through a series of interventions which take account of climate change adaptation. In addition to the conventional approaches of raising road levels to reduce flood impact, the subproject in the Co Co urban development area will address flood management by such actions as ensuring zoning of areas is done such that valuable infrastructure is not constructed in the vicinity of the river, and construction takes into account the need to limit run-off and manage drainage requirements. This output involves several climate change adaptation measures and is expected to produce an outcome that can be used as a demonstration for other cities in Viet Nam.

ADB support for the project is critical not only due to the financial support it can bring to the cities, but also because of the wide range of technical assistance proposed to be provided through associated grants and the technical capacity that will be included within the loan. The project is expected to strengthen the capacity of both cities to address climate change adaptation issues as the further develop and to provide examples for other coastal cities.

The economic analysis aims to assess the economic viability of the project through standard cost benefit analyses. The analysis was undertaken separately for each of the 3 outputs/sub-outputs specified for the feasibility study reports. Finally the two outputs are combined and the overall project economic analysis accomplished with the cost of Project Management and Climate Change incorporated. For the two physical outputs the results are as follows:

- Dong Hoi Urban Environment and Climate Change Adaptation: The EIRR is estimated at 17.3% and the ENPV at \$11.7 million, indicating the component is economically viable.
- Hoi An Urban Environment and Climate Change Adaptation: The EIRR is estimated at 12.2% and the ENPV at \$1.01 million, indicating the component is marginally economically viable.

Combining the two outputs and including the economic costs of project management and climate change support provides an assessment of the economic viability of the overall project. The EIRR of the overall project is estimated at 13.1% and the ENPV at \$8.78 million, confirming that the economic viability of the overall project.

Financial Analysis

Analysis included in this report covers the following activities: project financial management; reviewing the financial feasibility of individual projects or sub-components to be implemented; reviewing the financial capacity of any project proponent (EA, IA and/or proposer) to provide counterpart funds and repay loans; and linked to the above, utility finance analysis and tariff analysis

The preliminary analysis of the provincial and city revenues and expenditures undertaken has been extended. This analysis confirms that without central government funding, the net financial position of both Provinces is very negative. The cities by themselves do show a positive financial position even when Provincial subsidies are excluded. In both cases, however, adding the City position to that of the Province shows a net cash flow deficit for the EA plus the IA

The ADB loan will be on-lent via the Ministry of Finance to Quang Binh PPC. It is expected the loan repayment will be covered by the PPC's budget. Regarding the PPC's budget breakdown, the financing plan of the project will be based on the anticipated revenues returning from the Bao Ninh land sales proceeds.

The financial analysis of the Bao Ninh UDA project has been finalized based on the data provided by Quang Binh PPC in April 2014 (assumptions regarding the land use plan, total investment costs to implement within the development area, phasing of the project and realistic land prices). The lack of specific entity (public developer) with financial statements to record income and expenses generated with this ambitious project is considered as an institutional constraint to the financial monitoring and evaluation of the project.

Based on the analysis described in the report, the cash flow of the project is expected to be highly positive with a FIRR more than 12%. This result is mainly due to the leverage introduced by the low land use price (administrative price) and to the term of the ADB loan. However, the sensitivity to the rate of commercialization is high, and it is recommended to develop the area by phase.

The utility financial analysis for the wastewater sector in Dong Hoi confirms that it is not feasible for URENCO to repay a loan directly from wastewater tariffs. Indeed, in the short term, projected increases in wastewater tariffs to cover even O&M are not affordable. The

Consultant has proposed a revised road map for wastewater tariff increases enabling URENCO to achieve O&M cost recovery by the end of the project. Until this time, there will be a need for a substantial subsidy to be provided by the PPC from other funds to ensure satisfactory operation of the existing and proposed facilities under this loan. It is proposed that the accounts of the wastewater sector for URENCO are “ring-fenced” to ensure complete transparency in relation to future tariff and operational subsidy requirements.

With regard to the PPC fiscal analysis, Quang Binh PPC should have the capacity to pay back the ADB-OCR loan without additional balance transfer from GoV. Possible additional balance transfer should be allocated to some specific policy as mentioned above, but not to additional debt service burden generated by the Project financing plan.

It is recommended to monitor tightly the increase of the OPEX during the project loan period and to make significant effort on own revenue and shared taxes collection to give more flexibility and more autonomy to the PPC. The objective should be, ultimately, to create a self-financing capacity up to 20% of the capital investment effort

With regard to the Hoi An components the ADB loan will be onlent via the Vietnam Development Bank directly to the Quang Nam Water Supply Company for the water supply subcomponent and the CoCo River UDA component who will be responsible for repaying the loan via water sales and land sales.

For the water sub-component, the utility financial analysis confirms broadly the previously developed road map by Quang Nam PPC regarding proposed domestic tariffs. Increases in hotel tariffs would be required to both encourage water conservation and to enable financial sustainability to be achieved. In the early years, dependent on the success of Quang Nam WSC to implement the revised road map, there will most likely be a need for a subsidy to be provided by QN WSC to the HA WSD. It is proposed that the accounts of the Hoi An water supply division are “ring-fenced” to ensure complete transparency in relation to future loan repayments. These increases in tariffs would be generally affordable to both domestic users and the major category of non domestic users: hotels and tourist facilities. Care however will be needed to ensure that the full benefits of the improved water supply are enjoyed by all residents of Hoi An through targeted programs subsidising both connections and tariffs to the urban poor.

For the CoCo River UDA, it is expected the loan repayment will be covered by the respective budget and balance sheet of the PPC and the QNWSDC, supported by fiscal, tariffs and land sales revenues. Based on the assumptions described in the report, the cash flow of the CoCo River UDA is expected to be highly positive with a FIRR of more than 12%. This result is mainly due to the leverage introduced by the low land use price (administrative price) and to the terms of the ADB loan. The sensitivity to the rate of commercialisation is partly neutralised by the grace period and the maturity of the loan.

The fiscal analysis and projections indicate that Quang Nam PPC should have the capacity to pay back the ADB-OCR loan without additional balance transfer from VNG. Possible additional balance transfer should be allocated to some specific policy as mentioned above, but not to additional debt service burden generated by the Project financing plan. The repayment of the principal is supposed to start smoothly in 2020 and to increase significantly from 2020 to 2025. However, this increase should not affect the key ratios of the PPC, fiscal revenues, raising faster than the debt service. It is recommended to adjust balance transfer to the effective financing need of the PPC, monitor tightly the increase of the CAPEX with possible competition of other significant capital investment projects with impact on debt service (including guarantee brought to public companies).

1 Introduction

Climate Change (CC) is already happening and will affect all countries, with the most serious impacts being felt in developing countries, notably Vietnam. According to the Intergovernmental Panel on Climate Change (IPCC), there is clear evidence that average air and ocean temperatures are increasing and that sea levels are rising. The global average sea level has risen since 1961 at an average rate of almost 2 mm per year and, since 1993 at about 3 mm per year; the average temperature of the earth has warmed 0.8° C since 1900, the beginning of the industrial period.

In this context, the most likely impact of climate changes for Vietnam (those for which models converge) are increases in average temperature, drier dry seasons, wetter wet seasons, and an increase in sea level by 2100 (from a baseline of 1980–99) of somewhere between 25 cm and 1 meter, but very possibly toward the higher end of this range.

The government of Vietnam adopted its National Target Programme to Respond to Climate Change (NTP-RCC) in December 2008 to determine the consequences of climate change and establish national priorities. The NTP-RCC is the country's guiding document for responding to CC in the medium term (2009–15). Its main objectives are to identify and assess the intensity of CC and develop scenarios of responses (adaptation and mitigation); to promote scientific and technological activities to respond to CC; to enhance public awareness, participation, and human resources to respond to CC; to promote international cooperation; and to integrate CC issues into development strategies, programs, and plans.

In the urban sector, there has been marked growth in coverage and system performance of water supply systems in recent years; however, wastewater and waste management operates at very low levels even in urban areas. Currently, only large cities have wastewater treatment plants, and less than 10% of the wastewater produced in Vietnam is treated. Many solid waste disposal sites are open dumping without proper treatment and collection is incomplete. Cost recovery levels are very low, leading to lack of interest by the private sector and poor operation and maintenance of urban infrastructure.

Vietnam's Socio-Economic Development Plan (SEDP), 2011–2015 accords high priority to construction of urban infrastructure, taking into account environmental protection, in which special importance is attached to (amongst others) sewerage systems, waste and water treatment facilities, facilities for collection, transport, treatment and burial of waste, especially hazardous waste in urban areas and industrial zones. The importance of these facilities and their development is emphasised in the recent National Programme on Urban Development (Decision No 1659/QD-TTg) in which nationwide performance indicators are defined for both 2015 and 2020. Key targets for these facilities are also incorporated in Vietnam's National Green Growth Strategy recently approved by the GOV.

Linked to this, the impacts of climate change are becoming particularly severe in the coastal cities. Sea level rise delays the discharge from the drainage system in estuarine areas, reverses river flows during high tide and reservoirs are intruded by salt water, and causes serious damages on urban infrastructure facilities. Flooding is impacted by high downstream water levels, preventing the rapid evacuation of flood waters. With the increasing sea levels and potential changes in storm intensity, this situation is likely to become both more uncertain and most likely exacerbated

It is within this context that the GOV together with the ADB has placed the Urban Environment & Climate Change Adaptation Project within the current lending programme. The project is in conformity with the Country Partnership Strategy (CPS) agreed between the GOV and the ADB. It can also be seen to represent a pilot project for the development of urban municipal services in the coastal cities, thereby providing a timely model for development in accordance with the GOV strategies for climate change (CC). The

approach adopted in this PPTA follows the three pronged approach outlined recently by the ADB for climate change and environment in Vietnam¹, namely:

- analytics and awareness,
- mainstreaming environment and climate considerations, and
- financing green growth and sustainable infrastructure.

Another key feature of the proposed project is the use for the first time of OCR financing in the context of the urban environment sector. Whereas the financial conditions for such a loan are little different today when compared against an ADF loan to the GOV, there is a profound impact on the EAs/IAs finances given that such a loan is onlent to the project owners and sustainable revenue generating mechanisms will need to be developed/enhanced to repay the loans and cover operation and maintenance of the facilities (albeit partially perhaps initially in both instances)

As defined in the concept paper: *The project's expected impact will be improved urban environment in Dong Hoi, Hoi An, and Sam Son. The outcome of the project will be improved access to climate change resilient urban infrastructure in Dong Hoi, Hoi An, and Sam Son. The indicative outputs will include (i) wastewater collection and treatment, (ii) flood protection and erosion control, (iii) water source protection from salt water intrusion, (iv) solid waste management, and (v) institutional capacity strengthening.* Prior to negotiations of the Consultant's contract, Sam Son was removed from the project.

1.1 The PPTA Assignment

1.1.1 The Project Team

As was previously noted in the Interim Report, a number of changes and additions to the project team have been approved as part of a Contract Variation to the Consultants current contract and through the provision of additional financing to assist in certain tasks related to the Project.

Changes to the project team include:

- Inclusion of a national road specialist to undertake due diligence review of the proposed road projects in both Dong Hoi and Hoi An (Mr Dinh Van Hiep);
- Reinforcement of the international team with the inclusion of a specialist International Economist, Dr John Wicks, enabling the current International Specialist, Mr Ian Bartlett to focus on financial management & assessment.

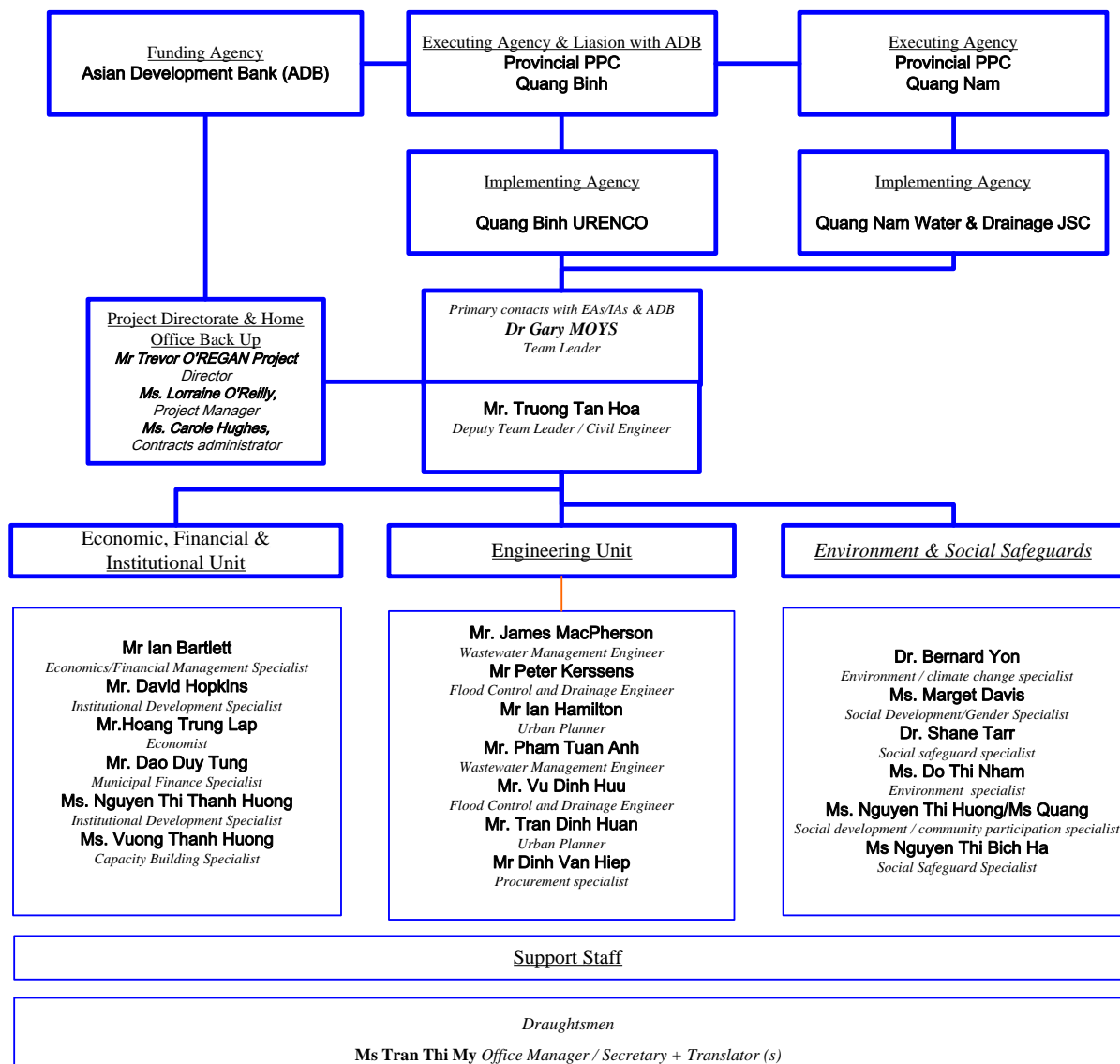
Additional financing has been provided by the ADB to

- Finance the inclusion of coastal specialists (international and national) through the Water Financing Partnership Facility (WFPF)
- Finance a specialist study on the onlending and revenue generating mechanisms associated with OCR financing for urban infrastructure in Vietnam.

While these two assignments are separate contractually to this study they have provided inputs particularly at the draft and final final reporting stage; the team leader for the current assignment has in addition provided overall guidance and logistical support through the use of project offices and facilities.

¹ ADB (2013) Environment and Climate Change Assessment

Figure 1: Organisation of Project Team (end of October 2013)



1.1.2 Activities Undertaken during Final Period

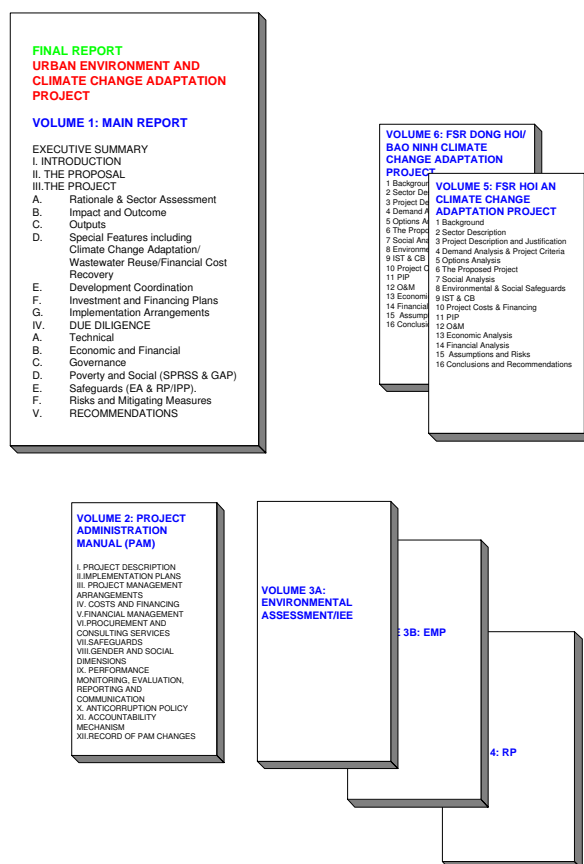
Following the Interim Workshop held in Hoi An on the 5th of July, the Consultant has worked primarily on the finalisation of project feasibility, undertaking a variety of supporting studies and surveys, the development of detailed feasibility studies and the different environmental and social safeguards documentation. The results of these activities are provided in the following chapters of this report and the accompanying volumes.

1.2 Organisation of the Final Report

This final report has been subdivided into seven major volumes as illustrated in Figure 2 . The contents of each volume are described below.

Volume 1	Provides an overall summary of the assignment and the main findings in relation to project rationale, the project description and financing, social and environmental impacts and economic and financial analysis
Volume 2	Contains the Project Administration Manual
Volume 3	Includes the two IEEs (incorporating EMPs) for the two physical components
Volume 4	Contains the Resettlement Plans for each physical component and Due Diligence Reports for associated facilities
Volumes 5 and 6 ²	Are the detailed FSRs covering Hoi An Water Supply Resilience, Hoi An Climate Change Adaptation and Dong Hoi Urban Environment and Climate Change respectively including the consultants technical due diligence reviews of the project components

Figure 2: Organisation of Reports as part of FR



² As requested by QNWSDC the previous Volumes 5 and 6 were combined into one unique volume for the Hoi An Component

1.3 Purpose & Layout of this Report

This Main Report of the FR is the summary report provided by the Consultant for this assignment. Following a brief review of work undertaken during the Final Period of the assignment, the report concentrates on outlining the justification of the project, the main project components together with an investment and financing plan and their potential environmental and social impacts. The report is organised into seven main chapters as follows:

Chapter 2	Provides the Consultant's final sector overview covering socio-economic development, water and wastewater sectors, integrated flood management, climate change and finally a summary of the diagnostic analysis with the identification of opportunities in relation to the current proposed project.
Chapter 3	covers the project description in terms of impact, outputs and activities which has been further prioritised since the Interim Phase. The overall project costs, financing plan and implementation arrangements are then defined.
Chapter 4	Covers the project social assessment including a review of the different socio-economic surveys supported by the project together with a summary of the GAP
Chapter 5	Considers the environmental and social safeguards for the project including the two major implementation documents for each physical component (the EMPs and the RPs)
Chapter 6	summarises the economic analysis for the project covering the project rationale, demand analysis, least cost analysis of project options and finally cost-benefit analysis
Chapter 7	Outlines the financial analysis undertaken particularly in relation to a review of provincial and municipal finances, financial management assessment of the EAs/IAs, the repayment capacity of the PPCs and summarises the utility financial analysis

The main report is supported by a series of appendices as below

Appendix A	References
Appendix B	Design & Monitoring Framework
Appendix C	Poverty & Social Assessment (including SPRSS)
Appendix D	Institutional Review
Appendix E	Cost Tables

2 Project Rationale

2.1 The Project Cities

The Project Cities as illustrated below are all located in the Northern/Central Coastal Region which has historically been one of the most disaster prone in Vietnam, threatened repeatedly by floods and typhoons. Climate change is likely to make these disasters more frequent and severe (by changing the severity of the typhoon and by raising sea levels), posing particular risks to the majority of people whose livelihoods depend upon tourism, agriculture and aquaculture.

Apart from the exposure of these cities to climate change, these two cities have other features lending themselves to their choice as candidate cities for this project.

First, in relation to good governance which is of importance with respect to the potential large loan sizes, both provinces rank highly as per the recently published PAPI index. The Vietnam Provincial Governance and Public Administration Performance Index (PAPI) is an annual policy monitoring tool that measures the performance and quality of provincial governance and public administration. Secondly, the two project cities, Dong Hoi and Hoi An have developed significant activities in relation to climate change adaptation planning and green growth initiatives (particularly Quang Nam/Hoi An) such as including the development of LRAP in Dong Hoi, development of a CCAP for Hoi An and development of Eco – City and Green Growth strategies for Hoi An and Quang Nam Province.

Figure 3: Project Cities participating in the Urban Environment & Climate Change Adaptation Project



- Two urban areas of between 70,000-150,000 inhabitants:
 1. Dong Hoi in Quang Binh province;
 2. Hoi An in Quang Nam province
- Located in the central to northern-central regions (a disadvantaged area);
- Important tourism centres with natural and historical heritage sites;
- Urban infrastructure and municipal services are insufficient both in terms of meeting the existing and future demands (especially linked to increased tourism);
- Topography is relatively flat and low, and typhoons and heavy rains often cause severe floods and damage infrastructure facilities and living environment (ranked as amongst the most severe natural hazards in the region)

2.2 Hoi An Development Trends

Hoi An is located in Quang Nam province and is home to approximately 90,000 inhabitants. It is recognized as a World Heritage Site by UNESCO. Hoi An Ancient Town is an exceptionally well-preserved example of a South-East Asian trading port dating from the 15th to the 19th century; this tangible heritage is a unique feature in South East Asia, amongst which the "Japanese Bridge" (16th-17th century) is the best known feature. The bridge (Chùa cầu) is a unique covered structure built by the Japanese, the only known covered bridge with a Buddhist pagoda.

Hoi An provides a major contrast to Dong Hoi in terms of development with a much higher percentage of overall GDP from tourism (tourism per se represents 17% and the tertiary sector as a whole almost 65%). This in part reflects its geographic location near to Danang favouring international transport and also the increased amount of local tourist attractions, notably the old city recognised by UNESCO as a World Heritage Site. Hoi An consequently has a large and growing tourist infrastructure which needs to be rapidly supported by improved urban environmental management and protected from the impacts of flooding and saline intrusion, both of which are likely to be exacerbated by climate change.

Figure 4: Location of Hoi An on the Thu Bon River



Hoi An has been particularly studied from the Tourism context. While it is recognised that tourism has brought important economic benefits to the region, this has been at the detriment of the environment and further growth is considered unsustainable in the long term without significant investments in the environmental sector. Recently, Hoi An has adopted an Eco-city Development Plan and complementary plans such as transportation, construction, and tourism plans. These sustainable development planning initiatives work to shape future investment and development both from public and private entities to maximize economic opportunities.

2.2.1 Development Directions

The revised Master Plan for Hoi An is currently being discussed within government and is expected to be approved shortly; it is similar in development intentions to a previous plan produced in 2005 (except for more concentration of tourism along the coast) and is based on a concentric ring concept as shown in Figure 5. The inner circle, with a radius of about 1 km consists of the Old Town and associated neighbourhoods. The second circle moving

outwards (consisting of parts of the Thu Bon river basin) is intended to be a green belt which is characterised by natural features such as gardens and parks which are designed to assist with flood control through water retention. New, mostly road (and improved river) infrastructure would pass through these areas to the third outer area which will contain new development areas along the coast and to the west of Hoi An.

Figure 5: Master Plan Strategy 2020 - 30, Hoi An



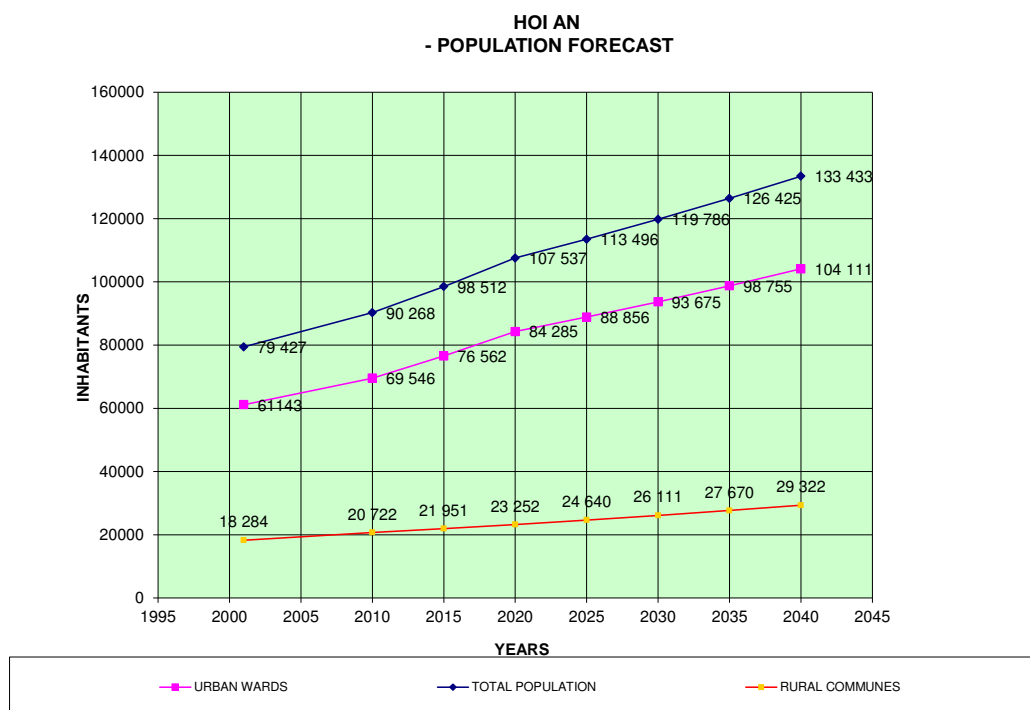
Source: Draft Master Plan for Hoi An

The Draft Master Plan which is intended to translate and detail this strategy is characterised by an increase in accessibility by improving road infrastructure, especially by building a number of new bridges over rivers. The Co Co river in the north would have three new bridges: to the extreme west; and 2 centrally to link with the new/improved Cua Dai Road which is being partly funded by the Vietnam government. This road would link in the east to a new bridge over the Thu Bon river which is currently under construction. In addition to the proposed roads it is intended that the river network should play a more important role in both transportation and tourism in the area. Improvement works on both the Co Co and Do rivers are intended to provide the basis for operators to promote both leisure cruises and links between the old town and the coast.

2.2.2 Planning Projections

The revised masterplan assumes large increases in population rising to over 110,000 by 2020 and over 130,000 by 2030. These projections as is often the case of are rather ambitious and have been tempered in the projections used in this study (see Figure 6) with the long-term masterplan target projected to be achieved by 2040.

Figure 6: Consultant Population Projections 2011-40 for Hoi An



2.3 Dong Hoi Development Trends

Dong Hoi City is a Class III City with a population of 113,900 (census 2010) targeting Class II City status (population over 200,000) in 2015 or shortly thereafter. It is the administrative capital of Quang Binh Province and is a major economic and tourism centre in the northern central region of Vietnam. The city is located in a narrow coastal strip 40 km from the Laos border and close to major future transportation and other major infrastructure developments. These include the East/West road corridor linking Vietnam, Laos and Thailand; the proposed Indochina railway linking China and Thailand via Vietnam; the new sea ports at Song Gianh and Hon La to the north of Dong Hoi the new 2,400 MW thermal power station in Quang Binh; opening of PetroVietnam office in Dong Hoi and the possibility of oil exploration; potential development of large limestone reserves for construction, and proximity to the large economic zone 100km north in Ha Tinh province.

Dong Hoi City is also an important tourism centre with many kilometres of beaches, significant cultural heritage and most importantly the National Garden of Phong Nha - Ke Bang Caves, listed by UNESCO as World Natural Heritage in 2003.

During the American war, Dong Hoi City was heavily bombed and almost all the infrastructure destroyed. After the war, reconstruction work was slow, mostly due to financial constraints. As a consequence, the infrastructure of Quang Binh in general and Dong Hoi City in particular has not been developed comprehensively. Furthermore, Dong Hoi City is affected by severe weather conditions such as floods and droughts, high tides and coastal erosion and is vulnerable to climate change.

Figure 7: Location of Dong Hoi on the Nhat Le River



2.3.1 Future Perspectives for Dong Hoi

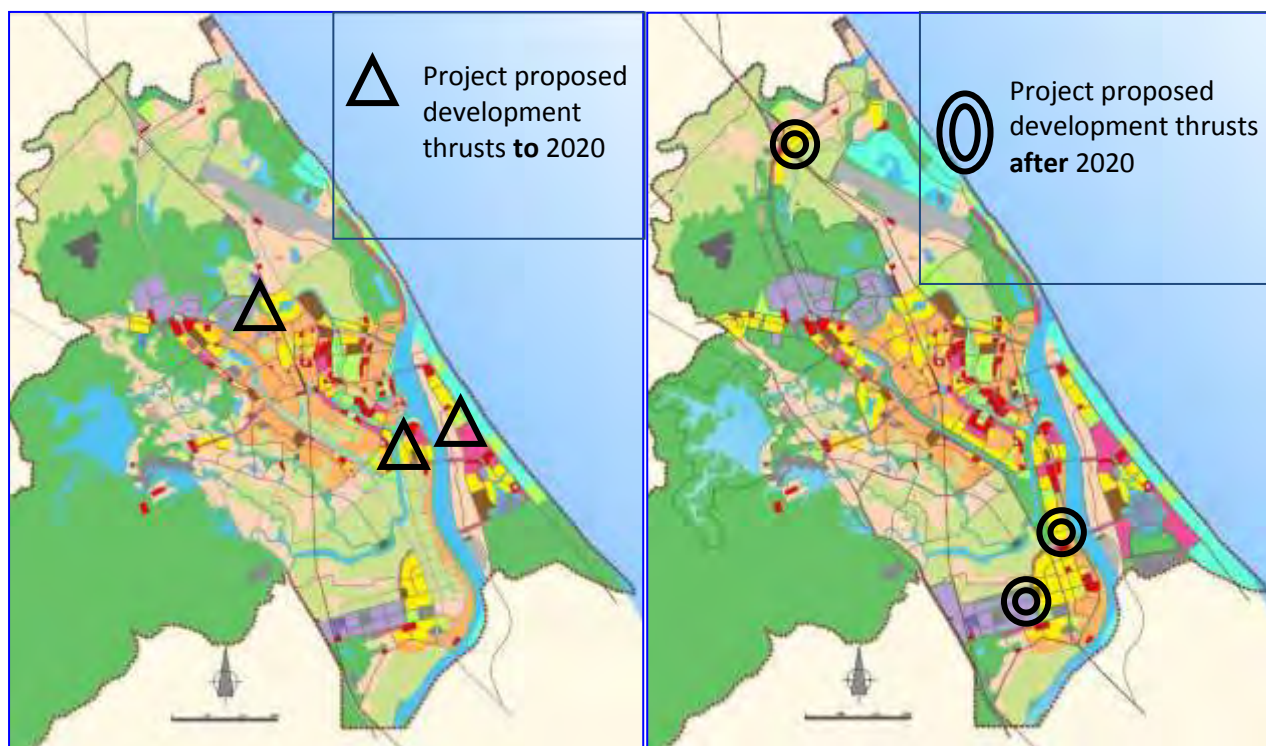
The Master Plan provides for the future development of Dong Hoi in several major directions:

- Infilling and expansion northwards towards the airport and north west from the current urban area, together with an industrial area;
- A new southern development area between the Nhat Le and Le Ky rivers; and the peninsular of Bao Ninh between the Nhat Le river and the sea.

The Master Plan depicts 2 Phases, with Phase 1 expected up to 2020 and the remainder after that date. The proposed broad land uses in the Master Plan for both Phases are shown on separate maps in Figure 8. It is clear that the Phase 1 development (coloured yellow for new residential areas and purple for industry) is shown scattered between all of the above locations during Phase 1.

It is therefore recommended during Phase 1 that infrastructure provision, and hence development momentum, should be concentrated in only a few of the main expansion zones as shown by the locations of the triangles on Figure 8. It is also recommended that, subject to demand, the remaining expansion zones contained in the Master Plan be developed after 2020 as shown by the circular shapes on the Figure.

Figure 8: Proposed Phasing of Development Areas



Source: Figures 5.1 and 9.1 Dong Hoi Master Plan 2012 and Project recommendations

Apart from reasons of resource efficiency, the immediate areas around the second bridge over the Nhat Le river are preferred for development in the short term as the completion of this bridge by the end of 2013 will automatically encourage building pressures in this area. It is also the government's intention to continue infrastructure preparation on Bao Ninh in the immediate future as one of Dong Hoi's promotions to attract more local and international investment. In addition, all 3 of the proposed short term development areas are essentially expansions of the urban core and should not require as much additional infrastructure as Phase 2 sites which are more peripheral in nature.

At the moment Bao Ninh is loosely attached to the main urban area of Dong Hoi via one bridge. However, following completion of the second bridge, and with plans for a third bridge being considered, this will shift the urban focus to include the whole of the peninsular within the city boundaries. This can be seen in Figure 9 below which shows (in solid red) the new road links serving both Bao Ninh and the existing urban area at the end of 2014. The Third Bridge would then logically be completed in conjunction with Phase 2 developments after 2020 with the associated road links as shown (dashed red).

Figure 9: Future Development Areas and Road Links



2.3.2 Bao Ninh Peninsula

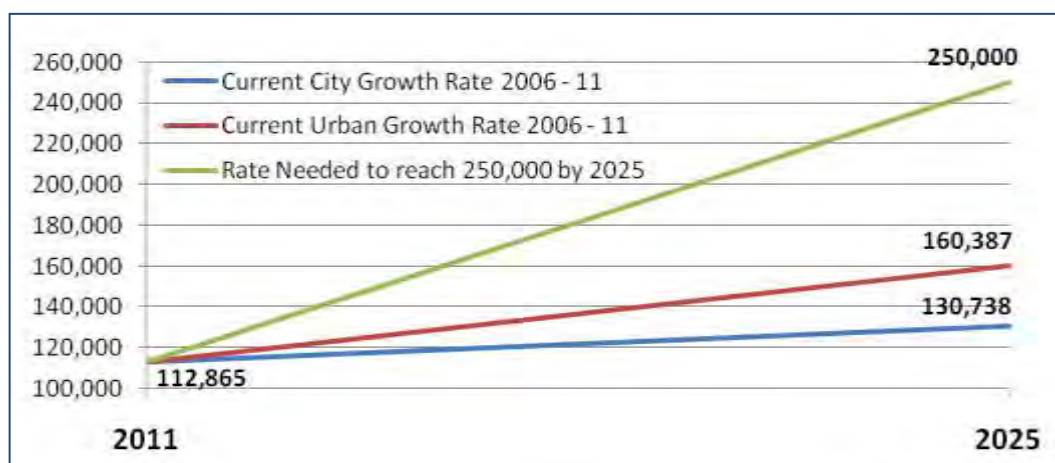
The provincial government is strongly committed to the development of Bao Ninh as a key part of their strategy to increase the growth of both development and population in Dong Hoi. However, as discussed, both Bao Ninh and the Dong Hoi areas need to identify and develop their comparative advantage in respect of other locations which will also be trying to attract additional development. It will not be enough to provide facilities such as hotels and infrastructure: there has to be external demand to either invest in or travel to the area. This requires that Bao Ninh develops an overall concept and vision that can be marketed internationally and within Vietnam as being specific and appropriate for the future development of Bao Ninh and Dong Hoi. This involves the following aspects:

- Designation of range of land uses and linked infrastructure/facilities which will attract investment and visitors from outside as well as catering for the local population;
- Phasing of this development to ensure that supporting infrastructure/facilities are provided in accordance with demand from zoned land uses;
- Identification of and provision for expected climate change impacts, especially sea level rise exacerbating beach erosion, and from extreme weather events, such as storm surges;
- Integration with the main urban area of Dong Hoi, in terms of cross-river (Nhat Le) infrastructure, as physical protection for the city from climate change and with respect to integrating land uses in the city as proposed in the Master Plan (2012);
- Promotion of low energy, renewable and re-usable elements throughout, whether these be energy saving designs, use of renewable energy sources and/or re-use of waste products; and
- Protection of individual and linked key natural resources and areas from development for the use of current and future generations.

2.3.3 Planning Projections

The Master Plan for Dong Hoi (2012) considered a number of alternative scenarios for development. The preference is for Dong Hoi to reach a population of 220 – 250,000 by 2025. As part of this growth it is expected that the city would gain Level II status around 2015. Given the current observed growth rates it is highly unlikely that these ambitious projections will be achieved. Optimistically it could be assumed that the population will be somewhere between the current (2006 – 11) rate for the whole city (1.05% AAGR) and that required to reach 250,000 persons by 2025 (5.8% AAGR). Rather than creating a new figure it is realistic to suppose that the current (2006 – 11) urban rate of growth for the city (2.51% AAGR) might be applicable, especially since the project will be concentrating on urban areas. The comparison between these 3 rates and the resulting populations by 2025 is shown below.

Figure 10: Alternative Population Projects 2011 – 25, Dong Hoi



Source: Dong Hoi Yearbook 2011 and Project Estimates.

2.4 Climate Change & Climate Proofing of Infrastructure

Vietnam is likely to be one of the several countries most adversely affected by climate change. During the last 50 years, Vietnam's annual average surface temperature has increased by approximately 0.5 to 0.7°C, while the sea level along the coastline has risen by approximately 20 cm. Climate change has resulted in more severe and/or frequent occurrences of natural disasters, especially cyclonic storms, floods and droughts becoming more extreme.

Recognizing potential and long term spatial impacts of climate change, Vietnam has looked forwards to developing its long term policies on climate change mitigation and adaptation and has attached much more significance to the mainstreaming of climate change responsive solutions international socio-economic development strategies, policies and plans with a view of achieving the sustainable development of the country.

Together with the World's community, Vietnam committed to combat against climate change through the ratification the UNFCCC, the approval of the National Target Programme to Respond to Climate Change and more recently the preparation of the Climate Change and

Sea Level Rise Scenarios for Vietnam. The last up-dating of the simulations scenarios has been presented in 2012³.

2.4.1 Climate Change Scenarios for Vietnam

The Inter-Governmental Panel on Climate Change (IPCC) published in 2000 a series of projected greenhouse gas emissions scenarios that could be used to assess potential climate change impacts in the world. The Special Report on Emission Scenarios, known as the 'SRES scenarios', grouped scenarios into four families of greenhouse gas emissions (A1, A2, B1, and B2) that explore alternative development pathways, covering a wide range of demographic, economic, and technological driving forces:

- A1-scenario: the story line assumes a world of very rapid economic growth, a global population that peaks mid-century and the rapid introduction of new and more efficient technologies. A1 is divided into three groups that describe alternative directions of technological change: fossil intensive (A1Fi), non-fossil energy resources (A1T), and a balance across all sources (A1B).
- B1-scenario: it describes a convergent world, with the same global population as A1, but with more rapid changes in economic structures toward a service and information economy.
- B2-scenario: describes a world with intermediate population and economic growth, emphasising local solutions to economic, social, and environmental sustainability.
- A2-scenario: describes a very heterogeneous world with high population growth, slow economic development and slow technological change.

Climate change scenarios were initially prepared for Vietnam in 2009; the scenarios were based on the low (B1), medium (B2) and high (A2, A1Fi) scenarios. The average B2 scenario was recommended for all Ministries, sectors and localities to initially assess the impact of climate change and sea level rise and to build action plans to respond to climate change. The technical studies of the Project components already carried out for Hoi An and Dong Hoi integrate the CC provisions from these 2009 scenarios.

2.4.2 Climate Change Scenarios for the Project Cities

The following table presents the 2009 and 2012 CC forecasts for each concerned Province (Quang Binh for Dong Hoi and Quang Nam for Hoi An) and for two target periods, mid-century and the end of the century (2050 and 2099). All values are anticipated changes compared to the reference period 1980-1999.

Table 1: Changes in CC Scenarios between 2009 and 2012

PROVINCE	QUANG BINH (DONG HOI)				QUANG NAM (HOI AN)			
TARGET PERIOD	2050		2099		2050		2099	
SCENARIOS	2009	2012	2009	2012	2009	2012	2009	2012
Temperatures Increase (°C)	1.3	1.7	2.8	3.1	0.9	1.4	1.9	2.7
Changes in annual Rainfall (mm)	4.0	2.5	7.7	4.7	1.7	1.9	3.2	3.6
Sea Level Rise (cm)	30	23-25	75	60-71	30	24-26	75	61-74
Extreme Events Frequency	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Source: Ministry of Natural Resources and Environment

³Ministry of Natural Resources and Environment, 2012. Climate Change Scenarios and Sea Level Rise for Vietnam.

By Comparison to the 2009 scenarios, the 2012 scenarios were formulated based on more accurate data and observations made in 2010 as well as more efficient statistical tools targeted only for Vietnam. Results are also more detailed, at the Provincial level and specific to coastal regions. The new scenarios have been used in the detailed analysis reported in the accompanying FSR documentation to this report and their detailed appendices (for example the Thu Bon Vu Gia Basin flood modelling study attached to Volume 7 of this report). These scenarios have also been included in the recent planning documentation for each of the two cities notably

- Development of LRAP in Dong Hoi (through World Bank funding) and climate proofing of infrastructure proposals as part of the recently approved masterplan
- Development of a CCAP for Hoi An with support from UN Habitat
- Development of Eco – City and Green Growth strategies for Hoi An Quang Nam Province.

Analysis undertaken as part of this study using past historical data has revealed the following trends and conclusions:

- There has been a tendency for the frequency of extreme events (notably typhoons) to increase as shown in Figure 11. However daily rainfall extremes (and it is hypothesised high intensity rainfall) have not increased entailing that standard design approaches based upon the use of existing intensity duration frequency curves remain valid for flooding analysis and drainage design. However, the observation of increasing rainfall during the wet season will likely lead to higher runoff coefficients particularly for natural river basins, increasing flood discharges.
- Analysis of the Dong Hoi components illustrated the importance to consider the correct IDF curves in project design. For example in studies related to the CCESP, IDF curves giving hourly rainfall depths 25% lower than the national guidelines were used. In this study with regard to stormwater it has been recommended to use the national guidelines but to increase rainfall depths by 10%. In addition, the use of simulation approaches to check performance of designs for higher return periods should be a mandatory process.
- In spite of the observed changes in sea levels, flood levels in Dong Hoi do not show a marked trend over the last 50 years. However, in Hoi An there have been marked variations since 1995 as illustrated below in Figure 12. These however cannot be ascribed to climate change but are more local man made interventions on the hydrological regime of the upstream river basin, notably with respect to the operation of reservoirs and the closure of some of the links between the Thu Bon and Vu Gia main streams.

Figure 11: Trend line of Storms and Floods in Quang Nam province, 1979-2010

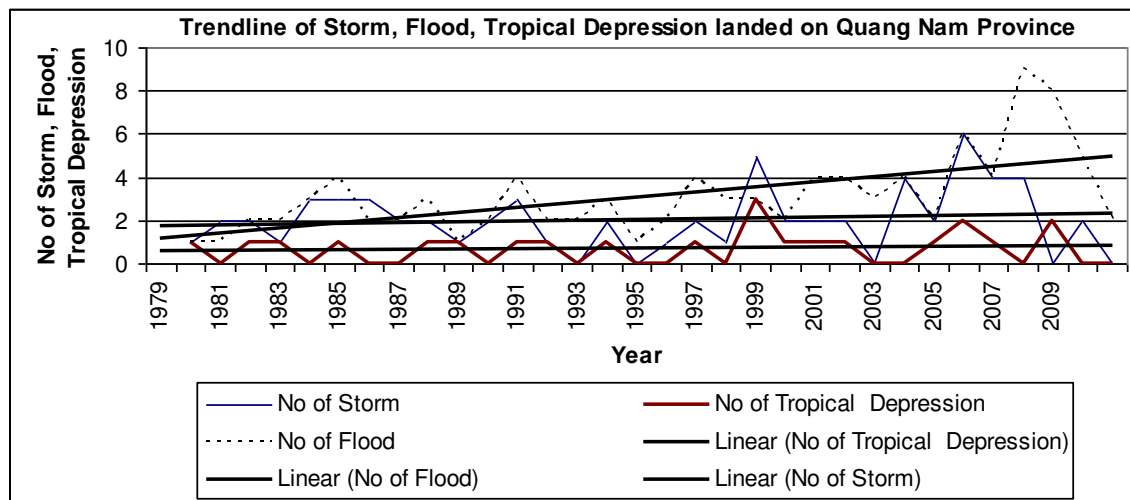
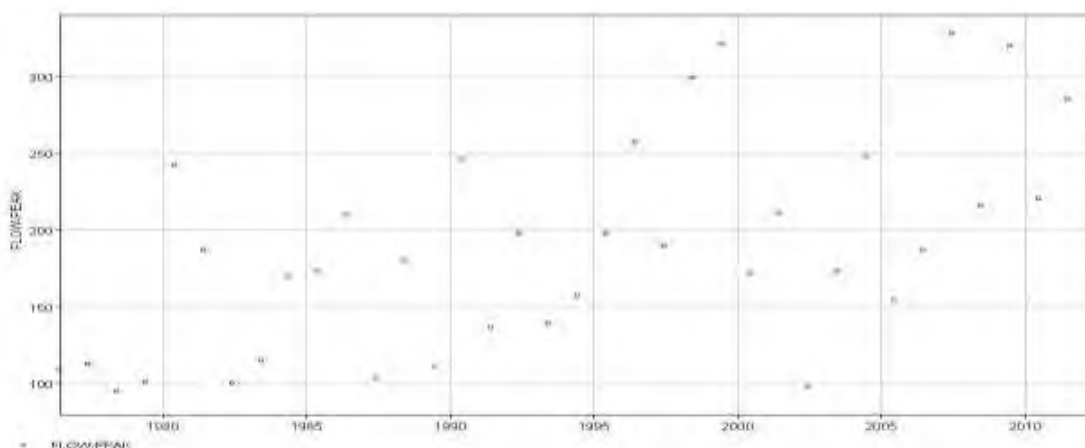


Figure 12: Annual Maximum water levels Hoi An station, 1976 - 2012



2.5 Urban Water Supply Vietnam

2.5.1 Nationwide Status & Benchmarking

Water supply systems in urban areas of Viet Nam have seen rapid growth in coverage. In urban areas, the population with access to “improved water sources” is officially given as 98%. However, the urban population with a house connection is only 59%. The remaining 39% has access to “other improved sources” such as shared stand posts or protected wells. Data from the Viet Nam Water Sector Review Project⁴ indicate a wide range in access to clean water, from 70% in major cities and towns to less than 15% in district towns. Coverage in cities in mountainous and central regions is below 50%, while cities in deltas have average coverage of 85% or more. Only a third of 754 towns has piped water supply

⁴ As reported in ADB (2010) Viet Nam Water Supply and Sanitation Sector Assessment, Strategy and Roadmap

Information recently published by the Ministry of Construction (MOC)⁵ summarises the nationwide status of urban water supply as follows based on the data sets from 2009:

- Surface water accounts for 70% of the total water sources with the remaining 30% from groundwater sources.
- 68 water supply companies (WSCs) are serving clean water to the urban areas. There are more than 420 water supply systems and the total design capacity of water supply reaches 5.9 million m³/day. Developments have focused mainly on water production facilities but the water distribution network improvement, i.e. rehabilitation of old network and extending new network, has not been given sufficient attention. As a result, the operational capacity of water supply stays at 4.5 million m³/day accounting for 77% of the design capacity.
- Service coverage rate is 73% on average and ranges from 75% to 90% in the major cities, i.e. 88.5% at Hanoi City and 87% at Ho Chi Minh City.
- The rate of water leakage has been reduced considerably from 40% on average in 2000 to on average 30% in 2009, but remains high compared with other countries. Average water consumption is 90 lpcd, varying from 110 to 130 lpcd in large centers to 70 to 80 lpcd in small towns.

On the basis of previous benchmarking studies^{6, 7} concerning water supply company performance in Vietnam, two WSC have been identified as well performing WSCs⁸ (Hai Phong and Vung Tau) to compare against the performance of water utilities considered in this project (see Table 2 below)

In terms of key indicators such as staff per connections, NRW (both in terms of % and l/connections/day) and cost efficiency (cost/revenue) both perform far better than Quang Nam WSC and are proposed to represent short to medium term objectives for Quang Nam/Hoi An WSC. Both staff ratios and NRW are over double those of the best performing WSC. This has a clear impact on the WSC profitability as illustrated by the cost:revenue ratio.

The table also provides information from Phonm Penh WSC⁹ regarded as one of the best WSCs in the region. Here staff ratios are far lower (less than 2.5 staff/1000 connections) and NRW (less than 10%). It is proposed that these represent potential long term objectives for Quang Nam and Quang Binh WSC.

⁵ As reported in JICA (20XX) The Study on Urban Environmental Management Vol. 03

⁶ SEAWUN (South East Asia Water Utility Network) Benchmarking Survey for 2007;

⁷ Vietnam Urban Water Supply Sector Note, 2008, prepared by the Vietnam Water Supply and Sewage Association (VWSA)

⁸ SOGREAH (2011) Complementary Note On Best Practices In Vietnam Water Sector

⁹ SAFEGE (2013) pers. communication

Table 2: Benchmarking of Quang Nam WSC and Quang Binh WSC against well performing WSC in the SE Asian Region and Vietnam

<i>KPI</i>	<i>Unit</i>	<i>Phonm Penh WSC</i>	<i>Hai Phong WSC</i>	<i>Vung Tau WSC</i>	<i>Quang Nam WSC</i>	<i>Hoi An Division</i>	<i>Quang Binh (Dong Hoi)¹⁰</i>
WTP	Number	4	7	6	7	1	2
Production capacity	m3/d	430 000	163000	180000	37500	6000	28000 ¹¹
Network length	km	1700	2000	600	380	35	nc
Population served	inh	1900000	1150000	612280	135320	28502	70000
Connections	Unit	250000	230000	122456	28274	5323	30000
Density	Connection/ km	147	115	204	74	153	nc
Staff	Unit	600	1052	402	264	41	nc
Staff	/ '000	2.4	4.6	3.3	9.3	7.7	nc
	connections						
NRW	%	7%	17%	13%	28%	29%	23%
NRW	m3/km/day	16.5	16.0	29.0	23.3	50.6	
NRW	l/connection / day	112	139	142	312	331	
Residential water tariff	VND/m3	5880	4540	4000- 5500	4700- 5500	5500	5000
Supply sufficiency	lpcd	116	142	294	277	211	310
Cost/Revenue	ratio		0.55	0.50	0.73	0.89	nc

2.5.2 Sector Strategies & Policy Environment

The government's current economic objectives are formulated in the Five-Year Socio-Economic Development Plan (SEDP), 2011–2015. While continuing the focus of the previous SEDP concerning (i) provision of essential infrastructure, especially water supply and sanitation, to poor households in all cities and towns; (ii) mobilization of resources for adequate operation and maintenance; and (iii) enhancement of cost recovery for infrastructure investments by setting and collecting appropriate tariffs and fees. The current plan additionally places greater emphasis on environmental protection and waste management.

The key policy in relation to urban water supply is water supply Decree¹², requiring that water supply companies be fully equitized and that they operate on the basis of full cost recovery including a reasonable profit. The decree therefore provides the basis for setting

¹⁰ Few data provided by QB WSC

¹¹ This is limited to 22,000 m3/day due to resource constraints

¹² Decision No. 38/2007/QĐ-TTg, dated 20 March, 2007 on criteria for classification and list of enterprises with one hundred (100) percent state owned capital

sustainable tariffs for water supply services. The orientation plan for urban water supply¹³ and the NRW Decision¹⁴ added ambitious targets for coverage (100% by 2025 for all urban areas, with 24/7 supply) and for reducing NRW to 15% by 2025 (this latter target is consistent with that already achieved by the better performing WSCs identified above).

2.5.3 Climate Proofing Urban Water Supply

A variety of recent references¹⁵ have provided guidance on climate proofing of urban water supply systems particularly how to ensure acceptable levels of service in light of climate change. A review of these references has enabled an overview of potential climate change risks to be developed for Vietnamese Coastal Cities as summarised in Table 3 below.

Major risks to water supply facilities (and other urban utilities) are associated with natural hazards such as typhoons and tropical storms leading to severe flooding and wind conditions. Such phenomena are understood to be strengthening with a consequent impact on flooding and damage of water company assets and increased risks to supply interruptions and decline in customer services¹⁶. It is particularly important in this context to consider other utilities, notably electricity supplies as power outages and shortages will also have impacts on supply security.

Table 3: Climate Change Risks for Urban Water Supply in Vietnamese Coastal Cities

<i>High</i>	<i>Medium</i>	<i>Low</i>
Increased risk of company assets flooding and damages/interruptions from extreme events Availability of water resources impacted by changing weather patterns Coastal rivers increasingly impacted by salinity	Increased problems of dam safety Power shortages and increased use of back up power sources Accelerated asset deterioration (wetting & drying cycles, temperature, salinity of groundwater)	Increased pollution in raw water (increased treatment & disposal costs)
Increased competition for resources (particularly irrigation and hydropower)		Increased customer demand in dry season

Changing weather patterns most notably the changing pattern of wet and dry seasons will have impacts on the availability of water from existing resources. While future projections are not clear in this respect, existing observations in the central coastal region suggest that wet periods have been becoming wetter and dry periods dryer, thereby exacerbating the impact of both floods and droughts.

While sea levels have been rising in the coastal regions, thereby increasing the risk of salinity, recent changes have been mostly ascribed to changes in water use, particularly increased use and competition for scarce water resources particularly by agriculture and hydropower. For example the major observed increase on salinity in the downstream

¹³ Decision No.1929/2009/QĐ-TTg dated on 20 November 2009 of the Prime Minister orientations for development of water supply in Vietnam's urban centers and industrial parks up to 2025, and a vision towards 2050

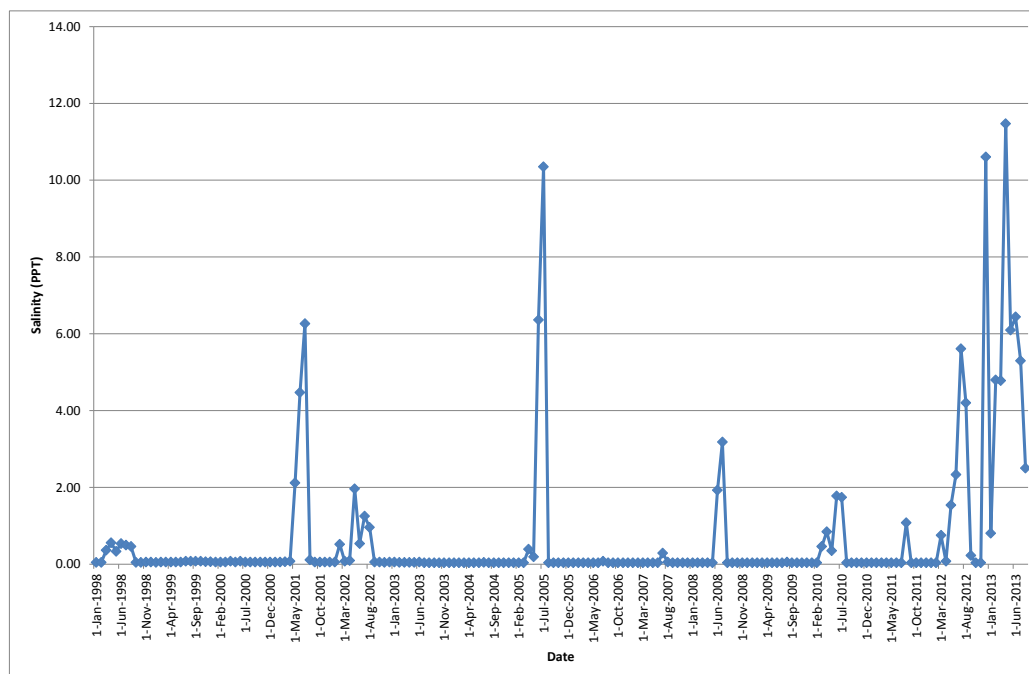
¹⁴ Decision 2147/2010/QĐ-TTg on Approval of National Unaccounted-for Water and Non Revenue Water Program to 2025

¹⁵ See in particular the different publications of OFWAT (the water regulator of England and Wales)

¹⁶ The recent typhoon Nari caused water supply facilities in Danang to be out of service during 3 days.

portion of the Vinh Dien river (see Figure 13) has been ascribed to this affect with the recent peaks in salinity corresponding to the commissioning of major dams upstream.

Figure 13: Increased Salinity of the Vinh Dien River



It is a commonly held belief that there is increased customer demand during the dry season/hot weather periods. While temperature is often a factor, it can generally be considered to be of rather low significance for a particular water supply system. Other factors notably changes in tariffs have often a much more noticeable impact on water demand particularly in relation to the range of temperature changes likely to occur in Vietnam over the next 100 years.

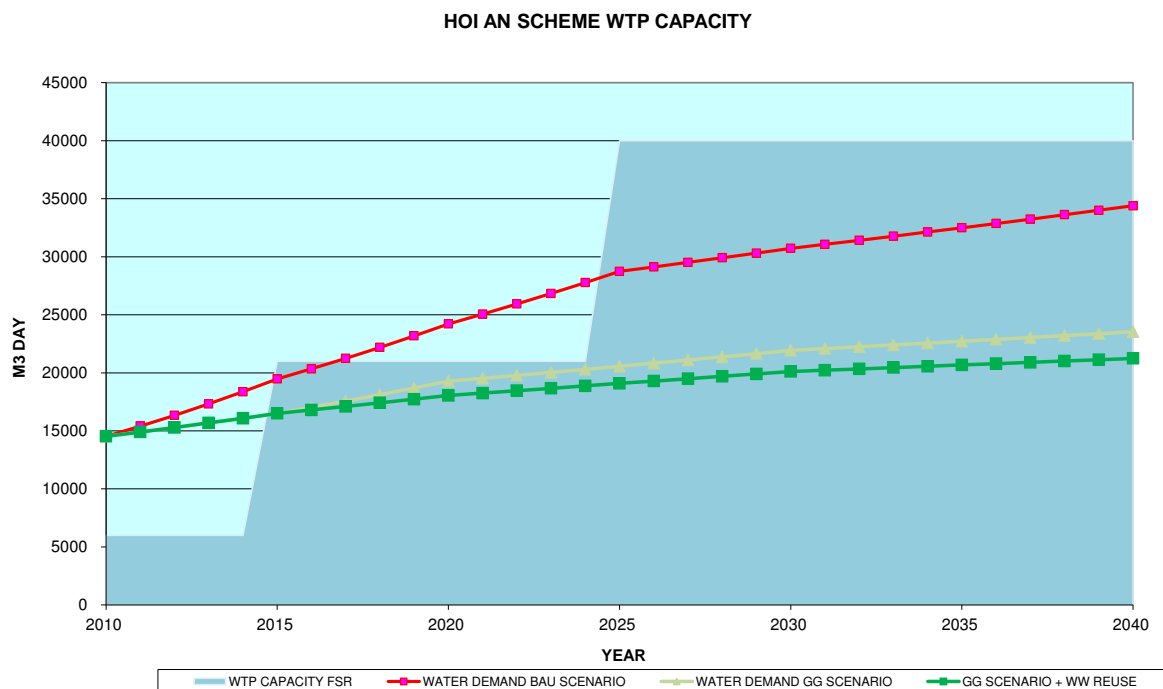
2.5.4 Hoi An Water Supply

As described in Volume 5 of this report, Hoi An is currently expanding its water supply infrastructure (treatment and networks) to meet the existing and future demands; these expansions would appear to be sufficient for a number of years. However, there are known deficiencies in the current resource (high costs and salinity issues) and unaccounted for water is relatively high (around 30%).

A particularity of Hoi An's water supply is the dominance of the tourist sector (hotels use over 50% of all water sold at present) with the largest 30 consumers consuming almost 1/3 of all water sold in Hoi An providing almost 50% of overall revenues; amongst these are the largest resorts which have very significant water usages averaging 1m3/tourist/day. In addition only 30% of residents of Hoi An are connected to the water supply system, with the remainder using wells increasingly affected by salinity and pollution from untreated wastewater.

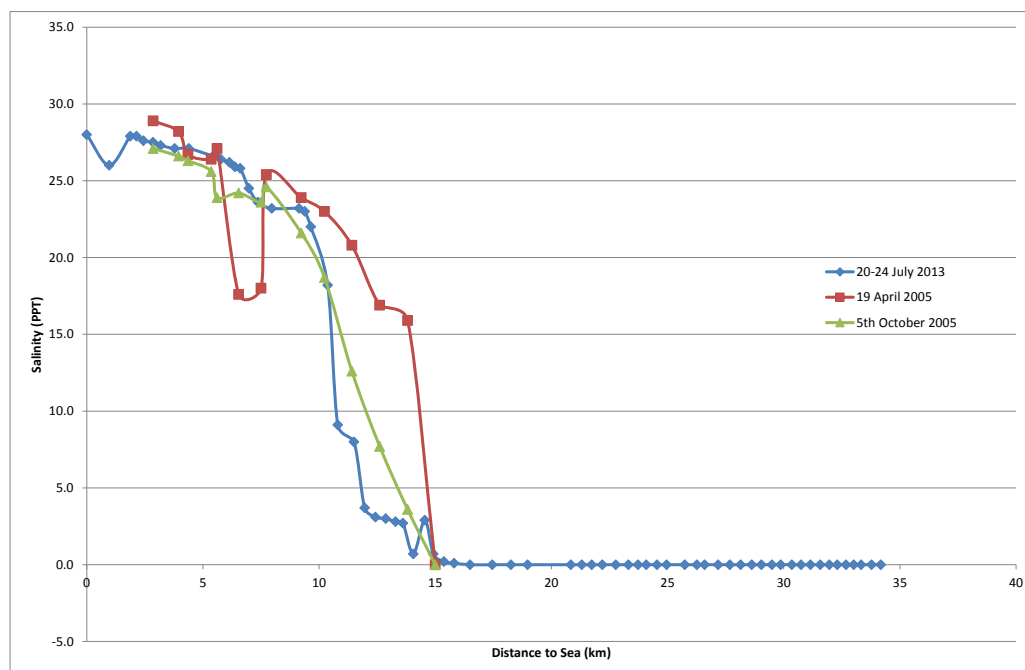
Two alternative water demand scenarios were developed: Business As Usual Scenario utilising existing water supply performance and targets as included in previous studies; a "Green Growth Scenario" incorporating activities such as enhanced NRW reduction, water demand reduction through tariff increases and water conservation measures in relation to the resort/hotel zones. These comparisons show that whereas the short term increase in water treatment capacity is wholly justified, the need for future increases could be reduced/delayed via the adoption of the Green Growth Scenario.

Figure 14: Comparison of “Green Growth” and “Business as Usual” Scenarios for Hoi AN



The main existing resource for Hoi An is the Vinh Dien river linking the Thu Bon river to the Han River near Danang. This resource has become increasingly impacted by salinity as shown in Figure 13 most significantly since 2012 with the commissioning of the Dak Mi 4 reservoir which has changed significantly the balance of low flows in the Vu Gia-Thu Bon river basin and with increasing sea levels. However, with this change salinity conditions on the Thu Bon river have become less critical with the salinity front now occurring at about 15km from the estuary mouth as observed in 2012 (see below)

Figure 15: Long profile of salinity upstream of the mouth of the Thu Bon



These observations are supported by simulation modeling undertaken by local institutes justifying the use of the Thu Bon instead of the Vinh Dien river as the most reliable resource for Hoi An. A significant added advantage is that the existing Lai Nghi reservoir site is close to the newly constructed water treatment plant, thereby reducing significantly raw water pumping costs.

While existing conditions indicate there is little need for additional bank side storage, simulations suggest there is a risk that salinity will move upstream. To counter this, it is proposed to allow up to 12 days of total storage covering the existing agricultural needs and the future domestic water supply needs. This implies an overall total storage of approximately 1.2 million m³, requiring the dredging of an additional 530,000 m³ from the existing reservoir.

To provide a future resilient water supply for Hoi An, three options were considered in this study:

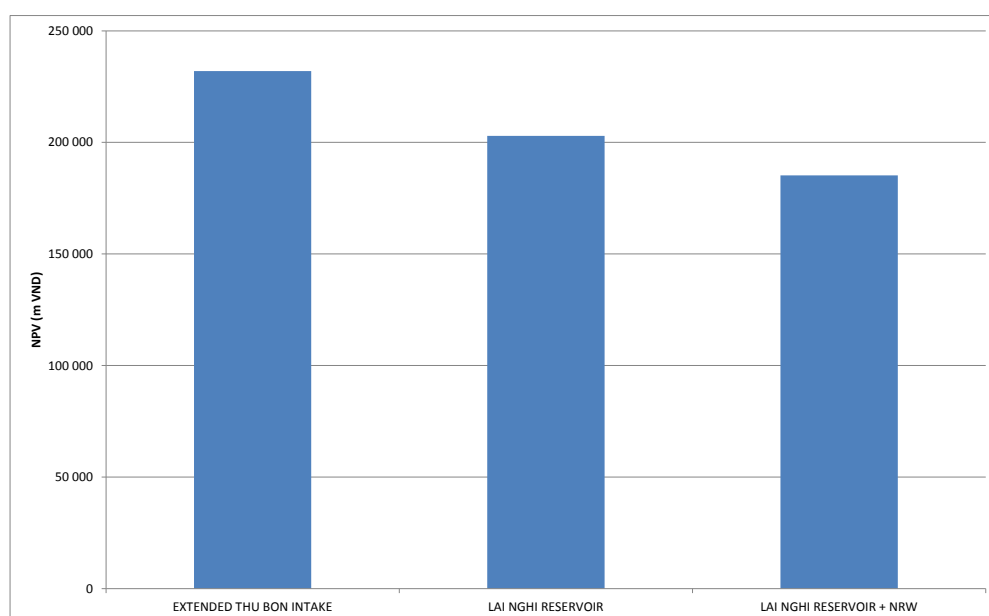
- Extended Thu Bon Intake
- Lai Nghi Reservoir
- Lai Nghi Reservoir + NRW

These options have been compared using least cost analysis (NPV analysis) taking into account both CAPEX and OPEX requirements over a 30 year period. Options including the Lai Nghi reservoir have been shown to be significantly less expensive than extending the existing intake to upstream on the Thu Bon River. This is essentially due to significant savings in operational costs. Operational costs are also projected to be reduced compared to the near future situation.

Further improvements can be obtained by the reduction of NRW together with the reduction of water use particularly by resort hotels. This is brought about by the deferring and reduction of future pumping and treatment investments and also the overall reduction in annual operating costs.

The recommended option is therefore to consider the use of the existing intake as part of a conjunctive use scheme including the use of the Lai Nghi reservoir while undertaking a series of measures to reduce NRW and water usage in Hoi An.

Figure 16: Comparison of Options in terms of NPV Costs



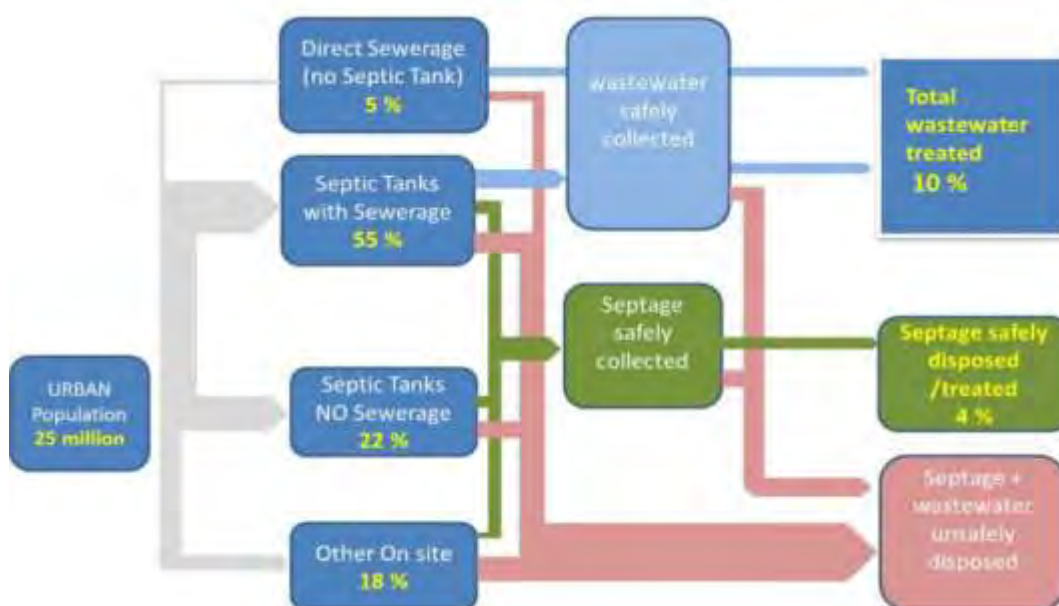
2.6 Urban Wastewater in Vietnam

2.6.1 Sector Performance

Vietnam, like other countries in Asia, is facing the challenge of increasing environmental pollution associated with rapid urbanization and expanding industrialization. Over the past 10 to 15 years the GoV has made considerable effort to develop urban sanitation policies, legislation and regulations and to invest in urban sanitation including wastewater treatment systems. During the past decade annual sanitation sector investment has been increasing, reaching US\$550 million in 2012, or about 0.45% of GDP.

By the end of August 2012¹⁷, there were 17 municipal wastewater treatment plants (WWTP) in operation and 31 municipal wastewater systems programmed or under construction. 94% of the urban population has improved sanitation, with 77% of households discharging wastewater to a septic tank.

Figure 17: Situation of Urban Wastewater in Vietnam



Despite the efforts by the government to address the sanitation needs, there are still many critical issues that need to be addressed as follows:

- despite a focus on constructing WWTPs, only 10 percent of generated wastewater is treated.
- although up to 60% of urban households have access to a drainage or sewerage system, very few have proper connections.
- while septic tanks are the primary means of wastewater disposal, only about 4 % of septage is treated.
- since 92% of the systems are combined stormwater/wastewater and there are very few connections, the influent reaching the WWTPs is very diluted.

Taken together this indicates that many of the existing WWTPs will not treat significant amounts of organic pollution, thereby affecting significantly overall pollution control targets of the GoV.

¹⁷ World Bank (2013) East Asia Pacific Region: Urban Sanitation Review: A Call For Action

The situation in Dong Hoi mirrors the national picture portrayed above. As described in detail in Volume 7 of this report, the on-going World Bank (WB) funded Coastal Cities Environmental Sanitation Project (CCESP) has substantially improved the environmental conditions and reduced flooding within Dong Hoi City. The CCESP was divided into two (2) phases: Phase I in 2007-2010 and Phase II from 2010-2014. The core of the city uses a combined sewer system, with a separate system used in new development areas. Wastewater interceptors and Combined Sewer Overflows (CSO) divert waste water to the 10,000 m³/day capacity Duc Ninh WWTP now under construction.

Substantial funding shortfalls occurred for implementation of the CCESP due to high inflation in Vietnam from 2008-2012, resulting in substantially higher construction costs. Consequently, numerous aspects of the CCESP were unable to be completed most notably in relation to connections and associated tertiary sewers. It is estimated that by completion of the project only 30% of the design flows will be reaching the Duc Ninh WWTP during dry weather conditions.

2.6.2 Sector Strategies & Policy Environment

Through a Prime Minister's decision, the overall policy to improve urban sanitation is being implemented with significant investments, but this is not supported by a national strategy for urban sanitation. Work remains to be done to collect and treat septage and wastewater, as the overall treatment level is low (see previously).

The cost of improvements in sanitation is significant. Financing needs are estimated to be US\$8.3 billion to provide sewerage and treatment to the estimated 36 million urban population by 2025. This needs to be considered in the context of the estimated economic losses resulting from poor sanitation of US\$780 million per year, or 1.3% of GDP.¹⁸

Cost recovery levels are low. The central government has financed the investments in sanitation, often backed by loans from international donors. However, the decisions on investments have been on a case-by-case basis and a strategic approach to address priority actions in the country has been missing. Furthermore, revenues from tariffs and fees often do not cover operating expenditures for the sanitation operations. This creates dependence on operating subsidies from provincial governments. The operating subsidies vary from year to year, depending on the other competing needs of the budget of the provincial government, creating uncertainties regarding the quality of the sanitation services.

In Vietnam, there are two regulatory instruments to establish wastewater tariffs.

- The Environmental Protection Fee, which is established by the Ministry of Environment; the fee is calculated on a percentage - about 10 percent- of billed water (Decree 67).
- The Wastewater Fee, charged by the water utilities on the basis of water consumed (Decree 88).

The implementation of these instruments is not uniform as there is a wide range in the fees. Municipalities also only apply one of the instruments. Dalat uses a wastewater fee of US\$0.05 /m³ of water consumed using the Decree 88 while Ho Chi Minh City charges 10 percent of the water bill using provisions of Decree 67 which translates to a charge of around US\$0.025/m³ for households. Low connectivity is also an issue in Vietnam. In addition the high operating costs of treatment plants, where applicable, increases costs which in turn creates greater pressure to increase tariffs.

2.6.3 Climate Proofing Urban Wastewater Systems

As above, risks in relation to climate change have been categorised for the case of Vietnamese Coastal Cities (see Table 4). A particular risk associated with wastewater treatment plants is flooding as these facilities are by their nature situated at low elevations.

¹⁸ World Bank (2013) East Asia Pacific Region: Urban Sanitation Review: A Call For Action

In this instance it is important to ensure that electrical installations are situated above all but the rarest flood levels.

In the case of combined systems (common in most Vietnamese cities), the exacerbation of flooding is a major impact of climate change. While the previous analysis suggested that the design events have not and do not appear to be increasing markedly, changes in the distribution of rainfall between the wet and dry seasons are likely to raise soil moisture conditions thereby increasing runoff. This added to sea level increases will undoubtedly increase the risk of flooding. In this respect the improved monitoring and management of networks/CSOs will become increasingly important.

During the dry season, river flows are likely to reduce thereby reducing overall dilution capacity. As sea levels rise, river velocities will also reduce thereby again decreasing the capacity of the receiving water to accept pollution. Sustaining low flows to improve pollution dilution (as well as reducing salinity) will be an important feature of future reservoir regulation.

Table 4: Climate Change Risks for Urban Waste Water in Vietnamese Coastal Cities

<i>High</i>	<i>Medium</i>	<i>Low</i>
Increased risk of company assets flooding	Increased sewer blockages because of low flows	Increased odour problems
Reduced river flows and dilution of effluent	Power shortages and increased use of back up power sources	Increased pollution in raw water
Increased CSO discharges	Accelerated asset deterioration (temperature, salinity of groundwater)	Disturbance of treatment operations
Increased sewer flooding	Septic tank soakaways less effective	

Ideally, consideration of flooding and climate change uncertainties should be included in feasibility studies. Most cities in Vietnam have combined systems constructing new or upgrading combined sewer networks, the following three objectives should be considered:

- the network should have enough drainage capacity to limit floods to an acceptable level. Apart from increasing the sewer pipe size which can be expensive, other options should be considered to reduce surface run-off such as the systems under the heading of SUDS (permeable pavements, storm tanks, soakaways, infiltration trenches or green roofs)
- the network should minimize the discharge of sewage into water bodies to reduce risks to human health and improve the environment. Innovative solutions such as adaptable Combined Sewer Overflows can be proposed; and
- the network should maximize the biological load to the treatment plant by connecting as many houses as possible. Furthermore, groundwater infiltration to the sewerage pipes should be minimized through proper construction techniques.

2.6.4 Dong Hoi Wastewater System

As indicated above, due to funding shortfalls numerous aspects of the CCESP were unable to be completed. In order to meet Dong Hoi's wastewater and drainage collection and disposal needs with an overall objective to achieve wastewater flows to the Duc Ninh WWTP that would bring the plant up to 100% operating capacity the following improvements have been determined:

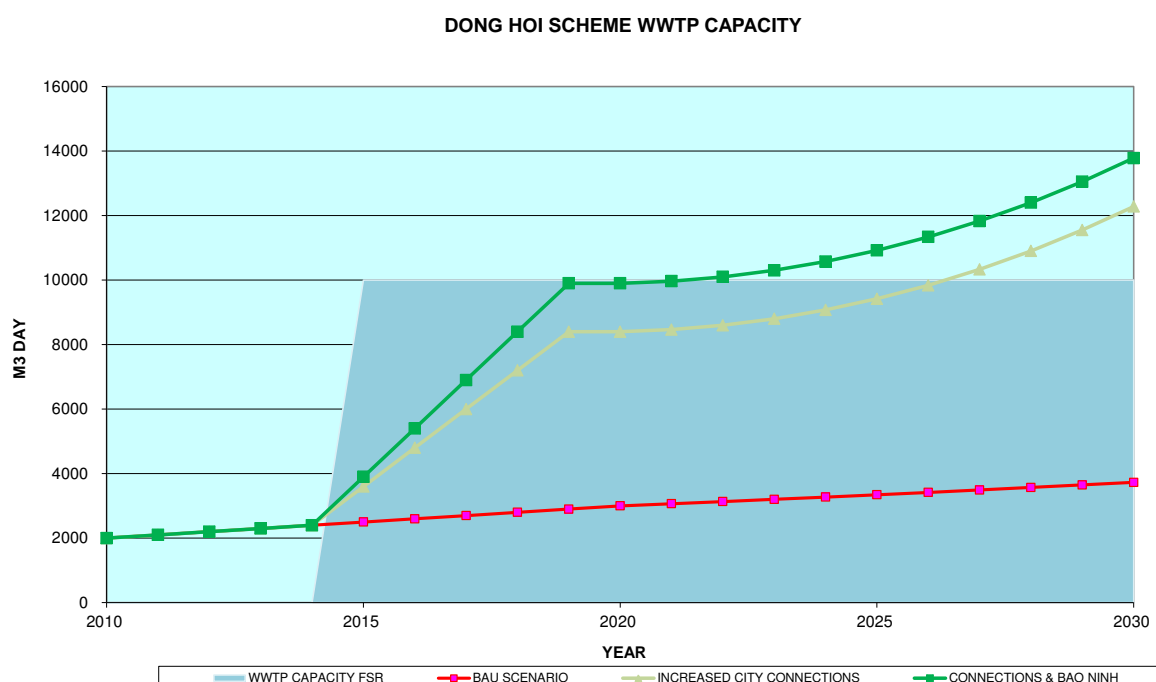
- Increased House connections and associated tertiary sewers;

- Extensions to primary and secondary sewerage/drainage network, including an additional pump station and CSO;

It is acknowledged that development of the Bao Ninh Peninsula is a priority for Dong Hoi City and Quang Binh provincial government. Consequently, the connection of this new zone to the future Duc Ninh WWTP has been additionally envisaged as part of this project¹⁹.

The impact of these investments on flows passed to treatment is illustrated in the following figure. While it is likely after 2020 that flows will exceed the nominal capacity of the Duc Ninh WWTP, analysis of the treatment process indicates that with rather simple adaptation the plant can treat the likely effluent flows upto at least 2025 and potentially beyond (2030).

Figure 18: Estimate of flows to treatment with and without the project



In addition to the above, telemetry systems are proposed for the Dong Hoi system together with inspection equipment to improve monitoring of the performance of the system and to enable inspection of the existing networks (thereby permitting cleaning and rehabilitation of existing combined sewers/drains to be scheduled appropriately as part of future operation and maintenance procedures)

2.7 Integrated Coastal City Flood Management

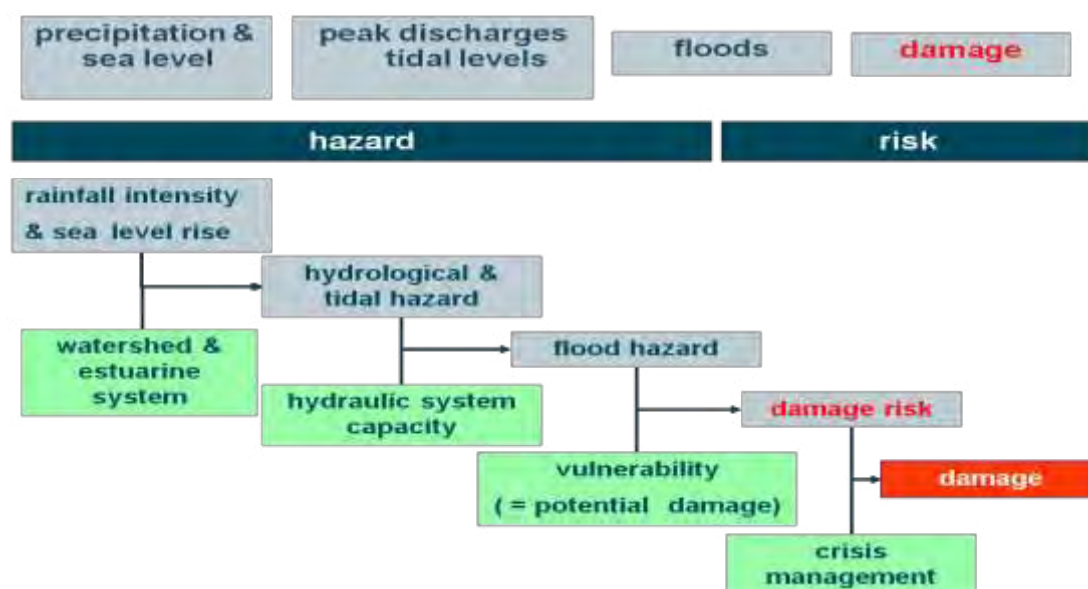
The flood hazard is formed from the hydrological hazard, i.e. the rainfall and resulting runoff, combined with the capacity of the river to convey the floods. The flood hazard can be controlled by infrastructural measures as applied traditionally in Vietnam, such as dyke and river embankment raising or strengthening. In Vietnam these approaches have been recently adapted to take account of climate change effects by adding forecasted sea level change to standard design approaches. While such measures are often necessary, their application in all cases remains infeasible; for example, in the case of Hoi An assuming a 1:20 year protection and a 40 cm sea level rise river dykes would need to be raised to over 4.2m and sea dykes upto 3.9 m. As is shown in the Climate Change Adaptation Plan, large parts of Hoi An are significantly below these levels rendering such approaches infeasible.

¹⁹ This was shown to be the least cost solution by the CSS study (ADB 2011)

The modern approach is therefore to consider **flood risk management** instead of just flood control and flood management. The difference is that one should look at the combination of potential flood hazard and expected damage (see Figure 19). In this way potential damages are validated, and can be related to desired flood protection standards. For instance, a design standard of 5% (return period of 20 years) is required for a city like Hoi An, but would be an overkill for rural areas. On the other hand, for cities such as Hanoi and/or Ho Chi Minh City the 5% design standard certainly will be too low, due to the high assets being protected. In such cases a 1% standard, or a return period of once per 100 years would be more applicable.

An approach based on flood risk, using the proper design standards and flood return periods depending on protected values will enable a more efficient use of investments for flood protection since it is based on a cost – benefit approach, where benefits are expressed as avoided flood damages.

Figure 19: Flood Risk Management approach



Such measures can be classified, according to the “triple layer” flood safety principle mentioned above, as follows:

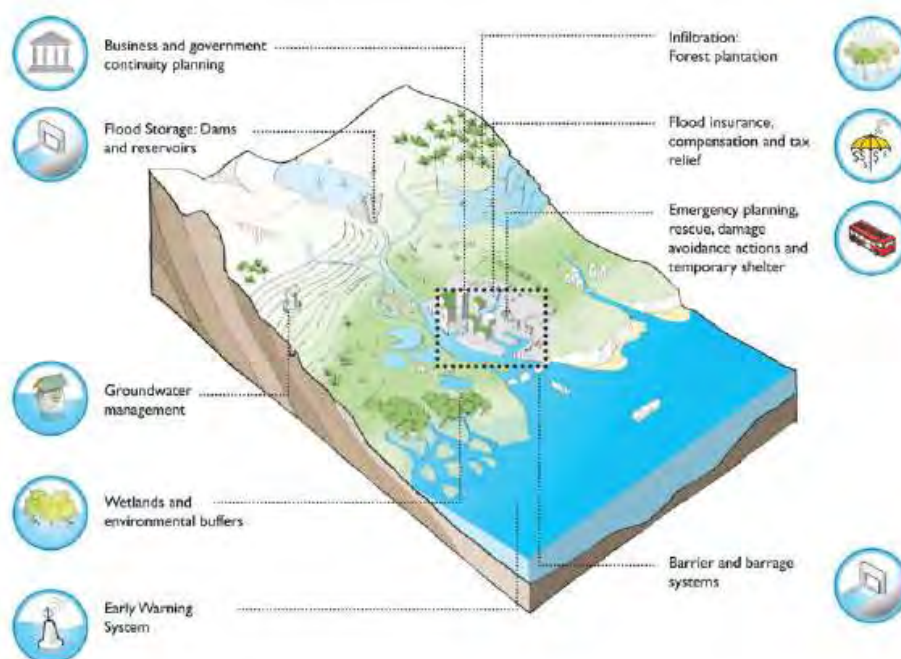
- Prevention: measures to prevent flooding, like reducing the hydrological and/or flood hazard, such as infrastructural measures, but also measures in the catchment such as (re)forestation, better land use, flood diversion, change of reservoir operation, river training, dredging to increase flood conveyance, removal of obstacles, etc.
- Protection: local measures, ring dykes/polder construction, spatial planning, flood proofing;
- Preparedness, flood early warning systems, crisis management, flood evacuation planning, and/or temporary flood control/protection measures.

In this respect also more attention should be paid to flood vulnerability, flood exposure, and resilience of communities. Nevertheless, it is more and more recognized in the world that fighting against floods will not be successful in the long term. And infrastructural measures like dyke and embankment construction, raising or strengthening are measures that basically represent the ‘fight against the water’. More and more the concept has shifted to Living with water and adaptation to the existing conditions as well as to climate change. For that reason, during the last few decades in many river basins this fighting against water or floods has been replaced by the concept of “room for rivers” or “space for water”, In this concept the

flood conveyance of rivers is increased and adaptation to flood types of measures are applied.

Another thing to be mentioned is that the focus of the flood control works for Hoi An is very much concentrated on the city itself and direct surroundings. Instead, a more basin wide approach would be recommended, also looking at the potential for flood management measures in the upstream basin. It is recognized, as mentioned before, that the present reservoirs in Vu Gia-Tu Bon river basin have little impact on flood control in the downstream parts of the river, specifically in Hoi An City, because the overall storage is relatively small and the reservoirs have no specific flood control function. In the future, if the new reservoirs will focus more on the flood management function and/or if reservoir operational changes in the existing ones will be allowed, improved flood control in Hoi An city will be possible.

Figure 20: River Basin Management Approach to Coastal Cities Flooding



Nevertheless, in order to protect people and property, more comprehensive solutions will be needed to control and mitigate floods and reduce inundation of the city: a more basin wide approach, to develop an integrated system with improved dykes and embankments as well as required hydraulic infrastructure (viz. control gates), but specifically also measures like improved reservoir operation, (re)forestation in the upstream catchment as well as in the coastal areas, the creation of more retention areas, and a combination with other hard and soft flood control measures, flood forecasting system, flood evacuation procedures, etc..

The approach therefore advocated consists of managing risks and building resilience from source-receptor, by addressing hazard, exposure & vulnerability. A combination of structural and non-structural measures can be advocated covering the upstream river basin, the urban drainage system and the coastal zone as summarised in Table 5.

Table 5: Matrix of Structural & Non Structural Flood Risk Management Measures adapted to Coastal Cities

	<i>River Basin</i>	<i>Urban Storm Drainage</i>	<i>Coastal Zone</i>
Structural Measures	Upstream retention & natural flooding zones Bypassing & flood relief schemes Dykes and embankments Flood barriers	Local retention & infiltration (SUDS) Drainage & Conveyance Pumping systems	Wave energy dissipation Coastal Defences Coastline (Dune) Stabilisation
Non Structural Measures	River Basin Management Flood Forecasting Early Warning & Evacuation Flood Insurance	Zoning & Urban Building Codes Real Time Control & SCADA Systems Flood Insurance	Coastal Zoning Typhoon Warning Systems Early Warning & Evacuation Flood Insurance

2.7.1 Modelling of Flood Management Measures

In order to get confirmation on the effect of the proposed flood management measures a mathematical modelling study has been commissioned to the Institute of Water Resources Planning in Hanoi. They have executed an intensive modelling study, with a detailed schematization of the relevant parts of Vu Gia-Thu Bon river. About 466 km of rivers are included in the model schematization, with about 250 cross-sections, 20 rainfall/climate stations, 6 hydro-power reservoirs and 2 irrigation reservoirs. A variety of design floods were simulated with the model. For flood probabilities of 5%, 10%, 20%, 50% and 100% (flood frequencies of once per 20, 10, 5, 2 and 1 years) including as well impact of climate change with respect to downstream boundary conditions (sea level change)

Apart from the project components initially proposed for financing by the ADB (such as the CoCo river dredging), a number of other flood management options were evaluated with the model as well:

- change of reservoir operation (according to present operational rules),
- improved reservoir operation (additional flood storage),
- flood diversion via Vinh Dien river,
- closing a local river branch (city channel),
- additional flow retention (local, like viz. in Lai Nghi)

In Table 6 the resulting water levels are given for Hoi An station. Table 7 presents the water level reduction at Hoi An station as compared to the base case.

Table 6: Water levels Hoi An station -flood management options (VGTB model)

Scenarios studied for VGTB basin			Water levels at Hoi An station (in m):				
		frequencies	1:20 yr	1:10 yr	1:5 yr	1:2 yr	1:1 yr
		probabilities	5%	10%	20%	50%	100%
Option 0	Base Case		3.11	2.81	2.45	1.80	0.93
Option 1	KB 1880	Normal reservoir operation	3.02	2.74	2.39	1.74	0.88
	KBCS	Improved reservoir operation	2.95	2.64	2.24	1.51	0.80
Option 2	Dredging CoCo	Normal reservoir operation	3.03	2.74	2.39	1.74	0.88
		Improved reservoir operation	2.95	2.64	2.24	1.51	0.8
Option 3	Water diversion Vinh Dien	Normal reservoir operation	2.95	2.67	2.32	1.67	0.82
		Improved reservoir operation	2.87	2.57	2.16	1.43	0.76
Option 4	Close city channel	Normal reservoir operation	3.12	2.84	2.49	1.82	0.89
		Improved reservoir operation	3.04	2.74	2.33	1.58	0.81
Option 5	Lowland flood retention	Normal reservoir operation	3.02	2.74	2.38	1.72	0.85
		Improved reservoir operation	2.94	2.63	2.23	1.48	0.78

Table 7: Water level reductions Hoi An station - flood management options (VGTB model)

Scenarios studied for VGTB basin			Water level reduction at Hoi An station (in m):				
		frequencies	1:20 yr	1:10 yr	1:5 yr	1:2 yr	1:1 yr
		probabilities	5%	10%	20%	50%	100%
Option 0	Base Case		0	0	0	0	0
Option 1	KB 1880	Normal reservoir operation	0.088	0.065	0.062	0.061	0.052
	KBCS	Improved reservoir operation	0.164	0.164	0.211	0.289	0.128
Option 2	Dredging CoCo	Normal reservoir operation	0.084	0.062	0.059	0.058	0.052
		Improved reservoir operation	0.161	0.161	0.207	0.286	0.128
Option 3	Water diversion Vinh Dien	Normal reservoir operation	0.163	0.135	0.13	0.131	0.104
		Improved reservoir operation	0.242	0.239	0.288	0.369	0.169
Option 4	Close city channel	Normal reservoir operation	-0.009	-0.038	-0.043	-0.024	0.034
		Improved reservoir operation	0.069	0.064	0.119	0.224	0.116
Option 5	Lowland flood retention	Normal reservoir operation	0.090	0.068	0.070	0.081	0.077
		Improved reservoir operation	0.169	0.173	0.226	0.318	0.145

From the results above it can be seen that in fact all local measures, like CoCo river dredging, closing the city channel, and additional local retention result in very small water level reductions at Hoi An station. Substantial water level reductions can only be achieved by measures in the middle and upstream basin of Thu Bon such as changes of reservoir operation, and flood diversion options (reversing in fact the trends observed in Figure 12). Probably catchment conservation and land use control will also contribute to improved flood management in Thu Bon river basin and to reduced water levels at Hoi An.

2.7.2 Coastal Erosion in the Project Cities

As part of a parallel assignment financed by the ADB, detailed analyses of coastal erosion and the different coastal protection proposals have been undertaken.

At many places along the Vietnamese coast including Dong Hoi and Hoi An cities, severe erosion is taking place creating problems for urban and industrial development, and coastal facilities such as power plants, along popular beaches and/or for coastal resorts.

In Dong Hoi, there is a marked trend of coastal erosion occurring, both on Bao Ninh peninsula and the strip north of Nhat Le estuary. The results of shoreline change detection by time series shows that the shoreline changed 528 m in a north-south direction at the southern shore and 137 m in an east-west direction at the northern shore. This erosion has been exacerbated by the destruction of the dune complex protecting the northern area of the Bao Ninh peninsula by the initial urban and resort development. Rectification of these past mistakes and future zoning of areas to the south are priorities to ensure the future sustainable development of Bao Ninh.

With regard to Hoi An, the most important issue with respect to coastal erosion is the area to the north west of the Thu Bon estuary. Analysis of satellite imagery indicates that prior to 2004 the coastline in this region appeared relatively stable; however, since this time the coastline has retreated significantly by up to 150 m in some places, severely affecting the resort zone. This impact has been ascribed largely to the dredging of the Thu Bon estuary and spit and the destruction of the coastal dune (both associated with resort construction). Other influencing factors include the loss of sediment from the upstream catchment due to the installation and operation of reservoirs. In recent years, this erosion appears to have reduced and a new equilibrium has been reached.

With respect to the proposed coastal protection measures consisting of the extension of the existing embankment, this is likely to exacerbate erosion due to reflection of waves at the toe of wall. Rather than adopting such an approach it is proposed to undertake a monitoring exercise leading to the development of more refined solutions involving most likely groyne structures and perhaps offshore breakwaters.

Figure 21: Retreat of the coastline between Oct 2004 and Oct 2012



2.8 Concluding Remarks & Opportunities

The analysis presented previously and highlighted in the problem tree in Appendix B identifies a number of opportunities for the ADB to assist Vietnam and the participating cities in key environmental and climate change sectors. These can be considered under three broad themes:

- 1) Climate Proofing and sustainability of water supply infrastructure in Hoi An
- 2) Climate Proofing and sustainability of wastewater infrastructure in Dong Hoi
- 3) Climate proofing of urban development in both Hoi An and Dong Hoi

The basis of the two former components has been discussed above with respect to Hoi An and Dong Hoi. This section summarises the climate proofing of urban development proposed to be financed under this project.

The proposed investments have been organised with respect to the previous matrix outlining potential structural and non structural measures as presented below.

Table 8: Matrix of Structural & Non Structural Flood Risk Management Measures proposed for inclusion in the Project

	<i>River Basin</i>	<i>Urban Storm Drainage</i>	<i>Coastal Zone</i>
Structural Measures	Dykes and embankments in Hoi An and Dong Hoi	Local retention & infiltration (SUDS) – Bao Ninh & Phap Bao Drainage & Conveyance – Bao Ninh	Coastline (Dune) Stabilisation – Bao Ninh
Non Structural Measures	Thu Bon Vu Gia River Modelling Study Improved evacuation routes (PR608 and Cua Dai access road)	Zoning & Urban Building Codes – Bao Ninh Peninsula and CoCo River UDA Telemetry of Dong Hoi combined drainage system	Coastal Zoning –Bao Ninh Early Warning & Evacuation – improved roads Cua Dai Bridge Access Road Monitoring of coastal processes Bao Ninh, Dong Hoi and Cua Dai Beach Hoi An

The overall zoning for Bao Ninh is proposed as part of the development of a socially inclusive plan for Bao Ninh incorporating climate proofing²⁰. The principles as agreed with Quang Binh authorities consist of

- a) Minimising social impacts on the existing fishing village and providing incentives for existing inhabitants to connect to water/wastewater networks via a targeted grant facility
- b) Imposing regulatory control on developers through the EA mechanism, particularly in relation to storm water runoff

²⁰ A similar pilot zone is proposed in Hoi An consisting of the CoCo River Urban Development Area

- c) Developing a coastal zoning scheme to protect primarily the dunes to the south of the proposed development zone
- d) Rehabilitation of the degraded dunes in the development zone area
- e) Providing appropriately sized urban infrastructure in the development zone (water, separate stormwater and wastewater systems, transport, ...)
- f) Developing a pilot system for a Sustainable Urban Drainage System on the Bao Ninh Peninsula.

An overview of the proposal is provided in the following figure.

Figure 22: Proposed zoning and climate proofing of Bao Ninh Peninsula development.



3 The Proposed Project

3.1 Impact & Outcome

The project's expected impact will be increased socio-economic development through sustained tourism and improved urban environment in Dong Hoi and Hoi An. The outcome of the project will be improved access to climate change resilient urban infrastructure in Dong Hoi and Hoi An. By adopting a holistic approach to coastal city development, the project will support the Government of Vietnam and more particularly the Provinces of Quang Binh and Quang Nam to (i) improve wastewater collection and treatment, (ii) enhance flood protection and erosion control, (iii) protect water resources from saline intrusion, (iv) climate proofing urban development, (v) improve the financial sustainability of water and wastewater utilities and (vi) strengthen the capacity of existing government entities and urban environmental utilities.

On the basis of the baseline information in this report and the different sector plans the following performance targets have been outlined:

- reduction in flood risk and increased resilience to extreme events and climate change (measured by change in flood protection level, change in exposure through improved flood zoning and changes in vulnerability through strengthened flood forecasting and early warning systems, increased awareness of residents to urban flooding)
- increase in wastewater collection and treatment rate and thereby reductions in pollution emission levels as measured by carbonic (BOD/COD) and nutrient base pollution levels (Nitrogen and Phosphorus);
- improvements in the resilience and efficiency of water supply systems, particularly in relation to non revenue water and salinity

3.2 Outputs

Incorporating lessons from similar projects, implemented in Vietnam and elsewhere in East Asia, the Project will adopt an integrated approach to address the current constraints in flood management, wastewater, environmental management, and urban development. The project outputs will comprise improved resilience for urban development, water resources and flood management, strengthened wastewater management, improved financial management, and strengthened project management capacity. A detailed description of these components is provided in the FSRs comprising Volumes 5, 6 and 7 of this report. Specifically, the proposed Project components, as verified through problem tree (Appendix B) and objective tree (Appendix B) analyses and presented in the proposed project design and monitoring framework (Project Logframe) (Appendix B), are:

Output 1: Hoi An Urban Environment & CCAP

- *Urban Area Extensions & Green Eco City Development*
 - *Urban infrastructure in development zones (including sustainable urban drainage systems)*
 - *Extension of wastewater system to Development & Resort Zones*
 - *Access Road to Cua Dai Bridge*
 - *Elevation of Road 608*
- *Integrated Flood Management & Coastal Protection*
 - *Phap Bao Detention Basin and associated stormwater sewerage*
 - *Dykes and embankments integrating road projects (eg Road 608, Coco River Protection dykes)*

- *City flood warning system (linked to River Basin flood warning system)*
- *Water Source Protection/Utility Efficiency Project*
 - *Water Source Protection/Conjunctive Use Scheme (Lai Nghi Freshwater Reservoir)*
 - *Urban Utility Efficiency projects (NRW improvements and other for Water supply)*

Output 2: Dong Hoi Urban Environment & CCAP

- *Bao Ninh Urban Development*
 - *Wastewater networks for Bao Ninh*
 - *Stormwater Systems (sustainable urban drainage systems)*
 - *Road extensions on Bao Ninh*
 - *Bao Ninh Masterplan (possible retroactively/grant financing)*
- *Integrated Stormwater & Flood/Erosion Management*
 - *Bao Ninh/Nhat Le Estuary Coastal Erosion including dune complex by zoning and tree & vegetation planting*
 - *Urban flood warning system (linked to regulating reservoirs)*
- *Wastewater Management in the Old City Area*
 - *Connections, Tertiary Sewers & Limited primary systems*
 - *Monitoring of pump stations and CSOs*

Output 3: Capacity Building Component

- Climate Change Adaptation Planning
- Project Management
- Utility Capacity Building

3.3 Lessons Learned

In spite of the large number of studies, integrating climate change together with environmental management is a relatively new concept and is a major challenge for urban development in Vietnam. Whilst Vietnam (and leading provinces such as Quang Nam) have developed Green Growth strategies, Climate Change Adaptation Plans and Local Resilience Action Plans to name but a few of the diverse instruments, practical implementation has been hampered by the disconnect between these forward looking approaches and the existing urban planning instruments such as the physical masterplans. The present project aims at addressing this issue by mainstreaming climate change and green growth concepts as part of the urban development pilot areas.

ADB's assistance to Viet Nam's urban and water supply and sanitation sector has been generally rated as successful particularly in assisting the GoV in terms of overall sector strategies²¹. The current project would continue this trend by the implementation of the first OCR type loan in the sector in Vietnam and through climate proofing of urban infrastructure.

Where projects have had difficulty, this has rarely been in the construction process itself but rather in relation to (i) inadequate or late treatment of resettlement issues leading to serious delays in construction start-up, (ii) inadequate or poor project design, (iii) inadequate knowledge of procurement procedures and complex procurement plans, and (iv) lack of counterpart funds. Assistance has been less successful in the timely delivery of project

²¹ Urban Services and Water Supply and Sanitation Sector in Viet Nam, ADB/IED Evaluation 2010

outputs with most projects taking over 8 years compared to 5 envisaged at the time of project preparation. This has been due to a number of causes in addition to those noted above, poor harmonisation of ADB and national project processing procedures, delays in project approval and implementation related to poor feasibility studies. This together with poor project costing and recent inflation (compounded by project delays) has led to substantial cost overruns and in some cases to the non completion of project outputs with concomitant impact on project benefits. A particular example of this is the on-going Dong Hoi wastewater project described previously. These issues have been reviewed in detail during project processing and the relevant lessons have been incorporated in the project design. For example, the present project has harmonised at the project preparation stage national and international procedures by providing detailed FSRs²² and involving the approval entities such as the VDB at an early stage.

As mentioned in the previous paragraph, implementation of environmental and social safeguards particularly resettlement has been an issue for many projects. The withdrawal of the city of Samson from this project at an early stage and the comments included in the due diligence reports of associated facilities provide clear example of this. The approach taken in this project has been to minimise these impacts through project design and to strengthen implementation through the development of detailed EMPs and RPs and providing independent monitoring as part of the capacity building component.

In both the urban sectors and in the flood management sectors, projects have been generally successful in the delivery of structural measures (pipes, water treatment plants, dykes, coastal embankment etc) albeit with long delays as mentioned above. The introduction of non-structural measures and capacity development has been less prevalent as is evidenced by the high continued inefficiency of utilities (as gauged by high water losses for example) and the poor functioning of river basin entities. The observations with respect to the Vu Gia Thu Bon river basin point to the quasi failure of river basin management entities.

While a primary objective of the sector has been to make utilities more financially viable by raising tariffs, as had been agreed to during appraisal, these lofty ideals have never been fully achieved. Related to this projects have often not delivered full benefits due to a lack of project financing; in addition to cost overruns, projects have often been subdivided (due to a lack of financing) to cover only a small incomplete part of the sector. The piloting of the use of OCR funds in the sector provides greater budget envelopes while requiring fiscal sustainability and will enable Vietnam to overcome these issues in the medium term.

A major shortfall in both water and wastewater projects in Vietnam is the lack of connections (particularly in the case of wastewater systems) to the public funded central facilities. Previous experience clearly demonstrates the need to consider a series of information, regulatory, institutional, and pro-poor measures to effectively promote household connections. These may be summarised under a 5 point strategy which has been included in this project design²³ including: (i) increasing public awareness by launching an Information Education Communication (IEC) campaigns; (ii) issuance, by local authorities, of a decree mandating that all households located within an area served by public sewerage system or drains be connected to the system; (iii) provision of a government subsidy for household connections; (iv) establishment, of a specific house connection group or department, within the utility company; (v) including house connections as an integral part of project formulation for new or existing sanitation projects that will be expanded.

²² Following in general government's Decision 48/2008/QĐ-ttg on Common General Guidelines on Feasibility study Preparation for Official Development Assistance Projects Funded by Five Banks issued on 4 March 2008

²³ World Bank 2012, Vietnam Country Report.

3.4 Project Description

3.4.1 Hoi An Urban Environment & CCAP

This forms part of Output 1 of the Urban Environment and Climate Change Adaptation Project covering improved urban environment and climate change adaptation for Hoi An City and consists of two components (sub-outputs):

- Improved water supply management and resilience for Hoi An
- Climate proofed urban development

The activities of the former component consist of two investments related to increased resilience of the water supply system of Hoi An and improvements in water use and water efficiency. The activities to be accomplished under the former sub-component consist of: Dredging of Lai Nghi reservoir (up to 530,000 m³); Reinforcement of the existing embankments and development of pathways around the reservoir; Replacement of the existing manually operated sluice gate with a motorised gate; Installation of a new raw water pumping station and associated pipeline connecting the reservoir to the new WTP; Installation of a wastewater collection system around Lai Nghi reservoir

This is supplemented by a sub-component aimed at increasing the efficiency of the operations of Hoi An WSD (and thereby serving as a model for Qunag Nam WSC) consisting of:

- Improvement of non-revenue water and water conservation through technical assistance and associated equipment
- Installation and training in management information systems consisting of a GIS and SCADA systems.

Climate proofing of urban development in Hoi An will be piloted through the implementation of 4 sub-components, namely :

- Integrated Flood Management Sub-Component: This component consists of a number of physical infrastructure investments (structural measures) supported by an enhanced city flood warning system, linked to a river basin wide flood warning system (non-structural measures). The structural measures consist of the dykes linked to the proposed road projects and the Phap Bao detention ponds. This latter project relates not only to the detention basin itself, but to the upstream sewerage. Improvement of stormwater storage will require a deepening of the reservoir through the dredging of about 50,000 m³ of sediment.
- Road 608: The main objective of road 608 raising is to create a flood evacuation route on the south-west side of Hoi An town, as opposed to the Cua Dai new road and bridge on the North-East side.
- Access Road to Cu Dai Bridge: Similarly 4.86 km of road will be created along the northern edge of Hoi An improving access and evacuation in times of flood
- Coco River Urban Development Area: the Co Co UDA serving an estimated population of up to 9,000 inhabitants will support Hoi An's vision to become an eco-friendly city and would also promote the country's Green Growth Strategy.

The location of these subcomponents is illustrated on the following figure . Details of the components can be found in the accompanying FSRs (Volume 5 and 6 of this report)

Figure 23: Proposed Components for Phase 1 Hoi An



3.4.2 Dong Hoi Urban Environment & CCAP

As described in the previous chapter the purpose of this component is to serve as a model for climate change adaptation for new urban developments in coastal cities in Vietnam. As described previously there have been a number of initial errors in development which will require remediation especially in relation to the coastal dune areas. These remedial aspects have been integrated into the storm drainage and the dune protection sub components as described below.

The activities under this component have been summarised under the following headings as below:

- Bao Ninh Wastewater System: Covering the communes of Bao Ninh and Phu Hai serving a total population of 12670 (including 1000 tourists) by 2020 and including 13.1 km of gravity sewer, 3.5 km of pumping main and 3 pumping stations.
- Bao Ninh Road Systems: Serving the new urban area of Bao Ninh and including 1 horizontal roads of 5.7km length and 3 horizontal roads of 2.2 km length.
- Bao Ninh Sustainable Urban Drainage System: covering on site stormwater retention, stormwater infiltration through roadside 11.6 km swales, remediation of the 60m road drainage, detention storage (1.6 ha) and connecting sewerage and final outfalls (7.0 km) to the Nhat Le River
- Bao Ninh Flood and Coastal Protection: including restoration and protection of 3.3 km of dunes and protection of a further 4 km of dunes by coastal zoning.

The wastewater management component for the main city area includes the following activities:

- Expansion of sewerage to increase connections in the key wards of Hai Dinh, Dong My, Dong Phu, Duc Ninh Dong and Phu Hai²⁴.
- Telemetry of key features of the drainage system including pumping stations and combined sewer overflows.

²⁴ Other wards such as Bac Ly, Nam Ly and Hai Thanh would be covered either via parallel financing (if available) or in a second phase.

[illegible]

3.4.3 Project Management Support

On the basis of different technical, institutional, procurement and financial assessments a comprehensive project management and technical support package has been developed covering both project cities. The existing project management units (PMUs) of the two IAs (Quang Nam WSDC and Quang Binh URENCO) will be strengthened through staff training, and the provision of vehicles and equipment. Relevant staff from each PMU will receive training at the start of the Project in financial management and reporting, and ADB disbursement and procurement procedures. The PMUs will establish and maintain a project performance management system (PPMS) to monitor project implementation and performance in meeting project targets. An international project implementation specialist will be recruited to provide technical advice to PMUs in technical design review, procurement, and project supervision. International and national experts in the following disciplines will also be provided to support project management: (i) civil engineering/project supervision; (ii) procurement/contract management; (iii) climate change/urban planners; (iv) financial management; (v) resettlement supervision; (vi) environmental monitoring and (vii) gender training. The outline terms of reference and full list of experts are in the Terms of References included in the PAM and in Appendix D of this report.

The support contract will also provide funds to increase public awareness by launching Information Education Communication (IEC) campaigns to promote the connection of households to the public water supply and sewer system, citing the benefits of the program to the homeowner and environmental improvement to the community and the provision of a revolving fund in each city to support subsidies for household connections, thereby encouraging connection and to reduce the financial burden on the disadvantaged households, especially the poor.

3.5 Special Features

The proposed Project will implement interventions for mitigating the existing water resource and climate change problems in Hoi An, existing wastewater and climate change problems in Dong Hoi and at the same time prevent the re-occurrence of these problems in the future in light of the rapid urban/tourist development in the Project area through the development of pilot zones.. It is expected that the improvement of the management of water supply, waste water and climate change with its consequential positive impact on flooding and environment, will ultimately bring about significant economic and environmental benefits. This is consistent with Vietnam's current increasing concern on protection of coastal cities from the impact of climate change.

In Vietnam, like most other countries, the threat to environment is multi-sectoral but the response often follows single-sector approach which is not always efficient. As elsewhere in Vietnam, in the Project areas, soil, water, and air pollution is caused by the urban, industrial, and agricultural sectors, flooding results from the interaction of a number of hydrological processes interacting at different scales, within the river basin, at the city level and at the estuary boundary. This Project "integrates" the Government's response to contain pollution and mitigate flooding impact by adopting an integrated, multi-disciplinary, and inter-agency planning, investment, and monitoring approach.

The Project design incorporates the upgrading of CCAP at the local pilot urban scale which will serve as basis for mapping out city-wide CCAP for further future developments. The study will support Vietnam's Green Growth strategy and the improvement of the city masterplans incorporating climate change adaptation.

The Project will complement the structural measures with the designed nonstructural measures, which were well accepted by the Government. During project design, hydraulic simulation techniques were developed to diagnose current flooding behaviour and test the adequacy of proposed structural measures in Hoi An. These simulation approaches will be continued during project implementation to develop operational rules, to cater for events rarer than the design events through flood mapping and emergency warning systems, and testing the effectiveness of stormwater source control. In addition to these measures, the Project will contribute to the strengthening tariff reform in the water and wastewater sectors. An integrated information system involving GIS and SCADA will be developed for water supply in Hoi An

Finally significant design optimizations were undertaken to improve both the efficiency of the overall Project and to reduce resettlement and associated social disruptions.

In summary therefore key special features of this project are:

- development of climate change adaptation measures for water and wastewater utilities in Vietnam through the piloting of climate proofing measures as part of the Dong Hoi Wastewater and Hoi An Water Supply subcomponents;
- climate change adaptation and promoting green city development through the Dong Hoi Bao Ninh and Hoi An Green Eco City subcomponents;
- improved flood management and climate change adaptation for Vietnamese coastal cities through the flood management subcomponents including both structural and non-structural measures;
- improving project delivery/preparation in Vietnam, through the parallel development of ADB project documentation together with government documentation and the association of the Vietnam Development Bank (VDB) early in project processing;
- improved access to funding in the urban environment sector through the piloting of OCR and the development of flow of funds and repayment mechanisms (including enhanced tariff mechanisms for wastewater and development of approaches for climate changes)
- piloting of Sustainable Urban Drainage Systems as part of the Bao Ninh component which will be a new innovation for Vietnam.

3.6 Investment and Financing Plan Summary

The estimates of the cost of the Project and its components presented in this section are indicative. The cost of the civil works were based on the costs provided in the Basic Designs. Other costs presented are lump sum estimates, details for which will be provided after further analysis and discussions on the types of interventions/activities that will be recommended for each Project component.

The project is estimated to cost \$134.43 million, including taxes of \$10.43 million, physical contingencies of \$10.86 million, price contingencies of \$4.18 million, and financial charges during implementation of \$6.14 million (Table 9). Detailed cost estimates by output and cost estimates by expenditure category, financier, component, and year are shown in Appendix E.

Table 9: Project Investment Plan

(\$ million)	
Item	Amount ^a
A. Base Cost^b	
1. Dong Hoi Urban Environment and Climate Change Adaptation	32.08
2. Hoi An Urban Environment and Climate Change Adaptation	75.87
3. Project Management and Climate Change Support	5.31
Subtotal (A)	113.26
B. Contingencies^c	15.03
C. Financing Charges During Implementation^d	6.14
Total (A+B+C)	134.43

^a Includes taxes and duties of \$10.43 million to be financed from government resources other than taxes and duties on equipment provided as part of grant-financed technical assistance, which will be financed from grant resources.

^b In mid-2013 prices.

^c Physical contingencies computed at 10% for civil works, field research and development, training, surveys, and studies; and 5% for grant-financed technical assistance. Price contingencies computed at 1.0% for 2015 and 1.4% for 2016 to 2018, and 1.5% thereafter on foreign exchange costs and 8.0% for 2015 and 7.5% thereafter on local currency costs; no price contingencies were included for grant-financed technical assistance; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for the ADB loan has been computed at the 5-year forward London interbank offered rate plus a spread of 0.4% and a maturity premium of 0.1%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Consultant's estimates from various sources. (Client Design Institutes)

The government has requested a loan of \$100 million from ADB's ordinary capital resources and grants of \$5.20 million from UCCRTF and \$1.75 million from PPSSF to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility including a 0.4% spread and a maturity premium of 0.1%, a commitment charge of 0.15% per year the interest and other charges during construction to be capitalized in the loan, and such other terms and conditions set forth in the draft loan and project agreements. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility based on these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

The financing plan is in Table 10. The ADB loan will be used to finance 86% of the cost of agreed civil works, 100%, excluding taxes and duties, of the cost of agreed equipment and consulting services as well as 100% of financing charges on the loan. Grants will be sought to cover (i) project management and climate change capacity building; (ii) flood management and the early warning system; (iii) dune rehabilitation and zonation; (iv) detailed design; and (iv) gender support. The provincial governments will finance 100% of the cost of resettlement and the central government will finance 100% of taxes and duties.

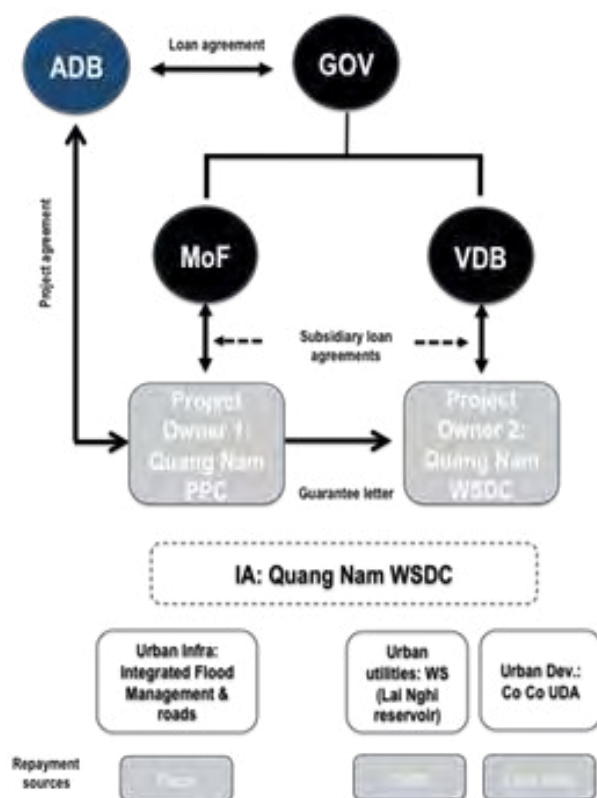
Table 10: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	100.00	74.4
UCCRTF	5.20	3.9
PPSSF	1.75	1.3
Government (national and provincial)	27.48	20.4
Total	134.43	100.00

Source: Consultant's estimates

3.7 Implementation Arrangements

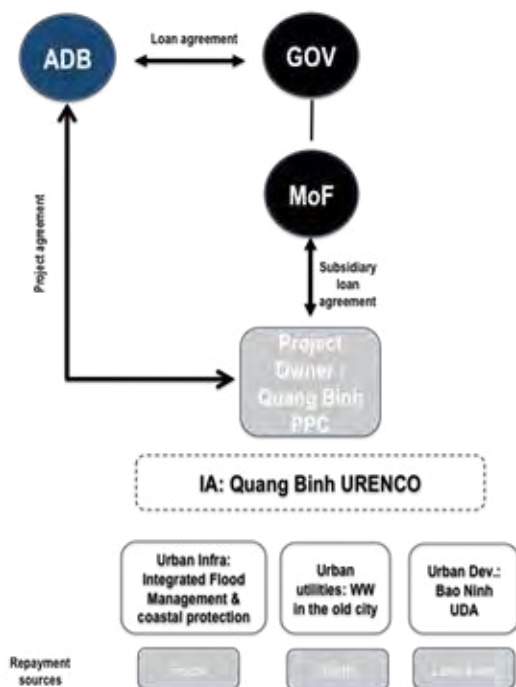
3.7.1 Project Management for Hoi An Component



The ADB loan for these components will be on-lent via the Ministry of Finance to Quang Nam PPC for the road and flood management projects. It is expected that the loan repayment will be covered by the PPC's budget. For the CoCo River UDA this will be onlent via the VDB to the Quang Nam Water Supply Company (as per the Lai Nghi reservoir component).

The components are distributed between two Project Owners/Executing Agencies: the Quang Nam PPC and the Quang Nam Water Supply & Drainage Company. Both will sign a subsidiary loan agreement with MoF for the PPC and with VDB for the QNWSDC. The QNWSDC will obtain a guarantee letter from the PPC to support the loan from VDB. Both Executing Agencies will also sign respective project agreements with the ADB.

3.7.2 Project Management for Hoi An Component



The ADB loan will be on-lent via the Ministry of Finance to Quang Binh PPC. It is expected that the loan repayment will be covered by the PPC's budget.

The Project Owner and the Executing Agency of the all project components is the Quang Binh PPC. It will coordinate and supervise the activities, sign a subsidiary loan agreement with the MoF and a project agreement with ADB. It will designate the staff of the Implementing Agency.

URENCO will set up a PMU as Implementing Agency for the three components of the project: the Bao Ninh urban development, the dune protection and hydrodynamic component and the wastewater collection improvement project in the main city;

The operating and maintenance of the urban infrastructure in the main city and in the Bao Ninh area will be under the shared responsibility of URENCO (drainage, wastewater, street lighting) and Department of Transport.

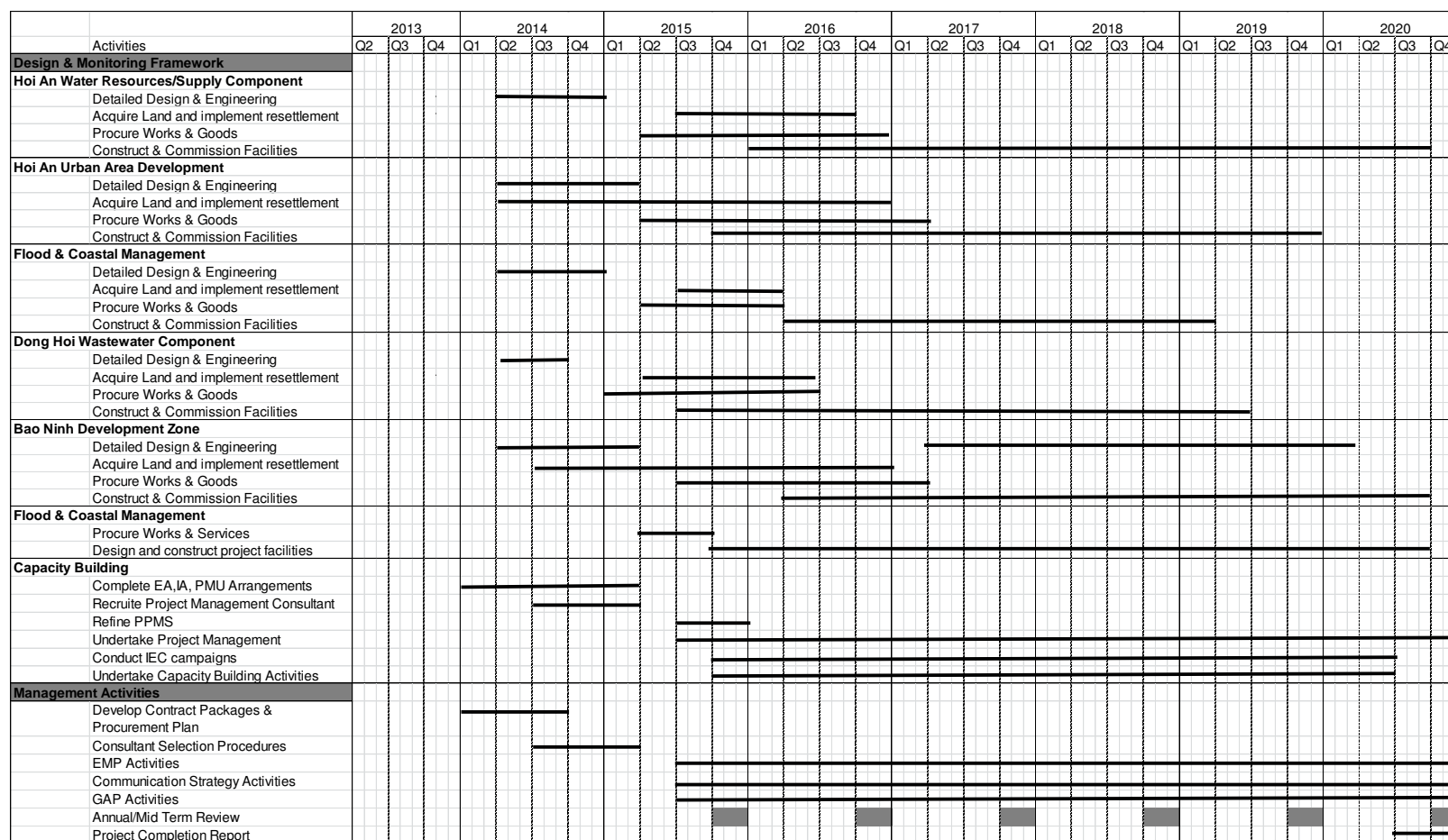
The capacities of the different agencies at the Provincial Level and at the City level were assessed. It was concluded that there is a need for assistance for strengthening climate change adaptation and planning; planning for water and wastewater tariff reform; environmental and social safeguards monitoring. The detailed analysis are provided in Appendix D.

The PMUs' financial, technical, and institutional capacity was assessed. Based on the assessment, the PMUs will need training in relevant ADB procedures during project implementation.

3.8 Project Implementation Plan

The Project will be implemented over 5 years from beginning of 2015 to end of 2019. The detailed project implementation schedule is included in the PAM and summarised in Figure 25. The implementation period is estimated based on the project scope and construction technology requirements and ADB's experience with similar projects in Vietnam. During 2014 and shortly thereafter, time will be spent mainly in finalising the development of the PMUs and preparatory work, including (i) finalisation of local feasibility and design documentation and approval procedures, (ii) procurement of goods and services (i.e., consultants and engineering and service contractors), and (iii) setting up of the project performance monitoring system (PPMS).

Figure 25: Summary Project Implementation Plan



3.9 Procurement

Goods, related services, and civil works financed partly or wholly by ADB will be procured in accordance with ADB's Procurement Guidelines (2013, as amended from time to time). A Procurement Plan, has been prepared as described in detail in the PAM. During Project implementation, this will be reviewed and updated on an annual basis. Contract packages for goods and related services exceeding \$1 million will be awarded on the basis of international competitive bidding (ICB), while those costing between \$100,000 and \$1 million may be awarded through national competitive bidding. Civil works contracts costing more than \$10.0 million will be procured using ICB, while those valued between \$100,000 and \$10.0 million equivalent may be procured using the national competitive bidding procedures, in accordance with the Vietnam's Procurement Law (2005), subject to clarification to the Law that have been agreed with ADB for the purposes of ADB's Procurement Guidelines. For small-scale works, contracts may be awarded using community participation procedures. The selection of suppliers/contractors and award of contracts will be subject to ADB's approval. The relevant sections of ADB's Anticorruption Policy will be included in all procurement documents and contracts.

The laws to be followed for national competitive bidding are set forth in (i) the Law on Procurement No. 61/2005/QH11 of 29 November 2005²⁵; the Construction Law no.16/2003/QH11 of 26 November 2003; (iii) the Amendment Law No. 38/2009/QH12 of 19 June 2009 amending and supplementing key articles of the above-mentioned two laws; (iv) the processes described in Decree No. 85/2009/ND-CP of 15 October 2009 on "Guiding Implementation of Procurement Law and Selection of Construction Contractors under the Construction Law", and (v) Decree No. 68/2012/ND-CP of 12 September 2012 on "Amending and supplementing a number of articles of the Government's Decree No. 85/2009/NĐ-CP dated September 15, 2009, guiding the implementation of the Law on Bidding and the Selection of bidders in accordance with the Law on Construction". Whenever any procedure in the national procurement laws is inconsistent with the ADB Procurement Guidelines (July 2013, and as amended from time to time), the ADB Guidelines shall prevail

There are two primary options for contract packaging available to the IAs: (i) a series of small contracts whose individual value is below the threshold(s) for international competitive bidding (ICB) procedures and (ii) one or two very large contracts whose value is such that ICB will apply. In practice it is unlikely that international contractors will either be interested or even competitive for bulk earthworks and landscaping civil works contracts in the project area. The domestic contractor's capacity is large and competition is strong. It would, therefore, seem logical that domestic procedures shall apply which inherently limits the value of individual contracts under ADB procurement procedures to a value of \$10 million. This, in turn, creates possible contractual difficulties when the overall balance of cut and fill earthworks and its transport becomes involved between several different contractors. This point will need to be discussed in detail with the project owners.

3.10 Consulting Services

The earlier sections have demonstrated the need to provide assistance to the two PMUs in project implementation and monitoring, especially with regards to the ADB's requirements on project management, procurement and disbursement procedures, and social and environmental safeguards. In addition more general requirements have been identified for institutional strengthening in a number of areas including: project monitoring and evaluation, public financial management, and capacity coordination, among others.

The Project will finance 58 person-months of international consulting and 175 person-months of national consulting, to be funded under the Project, for project management support and implementation of climate change components. The international consultants will specifically provide training and capacity building in climate change adaptation and planning, procurement and project management, financial management and tariff reform, and environmental and social

²⁵ Currently under amendment

safeguards monitoring and management. Contracts for consulting services estimated at \$200,000 and above will be awarded to consulting firms using the quality-and cost-based selection procedures (80:20), in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The Consultant's terms of reference are provided in the PAM

3.11 Indicative Disbursement Arrangements

The proceeds of the loan will be disbursed in accordance with ADB's Loan Disbursement Handbook, as amended from time to time. Because many of the payments will be made for large contracts, direct payment, reimbursement, and commitment procedures will be used to withdraw funds from the loan account. A Project imprest account will be set up at the PPC Financial Bureau. To expedite the flow of funds and simplify document processing, the Statement of Expenditure procedure may be used to reimburse eligible expenditures for any individual payment not exceeding \$100,000. The payments exceeding Statement of Expenditure ceiling will be reimbursed based on full documentation process.

Project imprest accounts, for ADB funds, will be set up in a bank acceptable to ADB. Disbursements from the imprest accounts will be supported by an appropriate withdrawal application and related documentation. The initial amounts to be deposited in each imprest account shall not exceed the estimated expenditures for the next 6 months or 10% of the loan amount, whichever is lower.

The PMUs require additional capacity and experience to efficiently deal with the operation and withdrawal procedures necessary for the operation of the imprest accounts. Accordingly, assistance and training will be provided so that PMU staff can expedite loan disbursements. An assessment of the financial management capability of the Financial Bureau of the PPC and specific arrangements for managing the project funds have been outlined.

3.12 Project Performance Monitoring and Evaluation

To monitor the progress of the Project in achieving the planned outcome and outputs, the PMUs will establish and maintain a project performance management system (PPMS), which will be designed to permit adequate flexibility to adopt remedial action regarding Project design, schedules, activities, and development impacts. The PPMS will adopt the following agreed indicators (i) physical progress of subproject implementation; (ii) results of capacity development program; (iii) household connections to the water and wastewater systems; (iv) improvements in NRW; (v) risk reduction in flooding; and (vi) social and poverty development. At Project inception, the PMUs, in consultation with the EAs, will develop comprehensive PPMS procedures to systematically generate data on inputs and outputs of the Project activities, and the socioeconomic, health, and environmental indicators to measure Project impacts.

PMU will refine the PPMS framework, confirm achievable targets, firm up monitoring and recording arrangements, and establish systems and procedures no later than six months after Project implementation begins. Baseline and progress data will be reported at the requisite time intervals by the IA to the PMU, including annual reporting on the water resources and environmental management plan. PMU will be responsible for analysing and consolidating the reported data through its management information system (which will be proposed), and for reporting the outcome to ADB through the quarterly progress reports.

3.13 Technical Assistance

A series of TA grants covering the above mentioned consulting services, detailed planning and design studies, the development of flood warning systems for Hoi An and the enhancement of coastal protection measures for Dong Hoi. The TAs will address these three priority issues identified by the sector analysis and the lessons learned from previous interventions that need to be improved respect to climate change adaptation. International firms will be engaged through quality- and cost-based selection method (80:20) using simplified technical proposals in accordance with ADB's Guidelines on the Use of Consultants. The indicative consultant needs and

outline terms of reference of the consultants are provided in the PAM. Implementation of the TAs will commence in the first year of the Project (2015).

4 Social & Gender Analysis

4.1 Background

The Social and Gender assessment for PPTA 8171: Urban Environment and Climate Change Adaptation was conducted in three phases between May and October 2013. Phase I included the scoping study to undertake due diligence as to the policy and legal context, determine the parameters of the social research within the project context, identify important social issues to be considered in project design and to conduct initial research to allow professional preparation of the Public Perception Survey questionnaires and consultant TORs plus data collection for the draft Interim Report. Phase II covered the contracting of the Center for Social Research and Development, Hue City, to undertake the Public Perception Survey and report on findings. Phase III included analysis of the Survey results, integrated with the initial research findings and additional data collected to prepare the Final Report, including the Summary Poverty Reduction and Social Strategy (SPRSS), the Gender Action Plan (GAP) and other ADB requirements such as the Stakeholder Participation Plan and Communication Strategy plus the additional sections for the Project Administration Manual.

4.2 Methodology and Data Collection

During Phase I, for the Scoping Study the team conducted 10 focus groups in Hoi An, primarily with female residents, farmers, night market sellers, recyclable collectors and tourism operators. Interviews were held with all project related commune heads in both cities and additional interviews were held with individual respondents concerning livelihoods. An extensive list of government officials and agency staff were also interviewed for the Scoping Study, particularly in Hoi An, where there was a demonstrated effort by government officials to assist the project preparation team in every possible way. Interviews in Dong Hoi were limited by reluctance of government staff to meet with the team. Some additional information was collected in Dong Hoi during September but did not suffice for full interviews during the Scoping phase. The national consultants drew heavily on the Official Year Books for each location to prepare statistical information for the Interim and Final Reports, but it appeared that gender disaggregated information on a number of fronts was not readily available. Due to the nature of the project (climate change adaptation) and the richness of the qualitative data, this was not necessarily a major constraint but will need to be clearly addressed during Project Implementation to ensure that the Gender Action Plan is adequately implemented.

4.2.1 Public Perception Survey

The Public Perception Survey was conducted through a series of private sector consultant administered questionnaires and area resident focus group discussions to gain understanding of the public perception of the environmental and climate change issues, study access to urban environmental services, and collect opinions/feedback from private sector and residents on the cost and affordability of these services. The questionnaires and focus group protocols were developed by the PPTA team with input from the financial and economic specialists concerning the willingness-to-connect, willingness-to-pay and affordability scales and questions. This Survey was supplemented in Hoi An by a survey conducted by another research team with approximately 9000 households not yet connected to the Hoi An water supply system concerning current water sources, willingness-to-connect and willingness-to-pay and affordability. In Dong Hoi, an additional survey source was the Willingness to Connect Survey conducted with a sample of over 240 HHs as a component of the World Bank Coastal Cities Environment Sanitation Project. The findings of these surveys were consonant with the findings from the PPTA Public Perception Survey, and have been included in the PPTA analysis. The quantitative findings were further enriched by resident opinions reported from the focus group discussions.

4.3 Policy Framework

The Socio-Economic Development Strategy, 2011–2020, approved in January 2011, envisions Viet Nam becoming a modern industrialized nation by 2020. Vietnam's Socio-Economic Development Plan (SEDP) - 2011–2015 focus areas to achieve this goal are economic restructuring, human resource development, and infrastructure improvement. The Plan accords high priority to construction of urban infrastructure, taking into account environmental protection, in which special importance is attached to (amongst others) sewerage systems, waste and water treatment facilities, facilities for collection, transport, treatment and burial of waste, especially hazardous waste in urban areas and industrial zones. The importance of these facilities and their development is emphasized in the recent National Program on Urban Development (Decision No 1659/QĐ-TTg) in which nationwide performance indicators are defined for both 2015 and 2020. Key targets for these facilities are also incorporated in Vietnam's National Green Growth Strategy recently approved by the GOV.

ADB through the Country Partnership Strategy 2012 – 2015 will support Viet Nam's goal to rise to upper MIC status through three pillars: inclusive growth, enhancing economic efficiency, and environmental sustainability. The key principles of the new CPS are (i) alignment with the priorities of the SEDP, 2011–2015 that intersect with Strategy 2020; (ii) focus on value-addition and innovative solutions; (iii) response to the government's commitment to economic restructuring and related reforms; and (iv) strategic partnerships with other development partners to implement commitments under the Paris Declaration. To maximize development impacts, thematic considerations such as good governance and capacity building, Private Sector Development, climate change, Regional Cooperation and Integration, and gender equity will be actively pursued. The project is in line with the Vietnam Social and Economic Development Plan (SEDP 2011 – 2015) and the ADB Country Partnership Strategy.

4.4 Poverty Impact

The poverty reduction rate for Viet Nam as a whole is the most impressive in South East Asia. Vietnam has already achieved, or is on track to achieve, most of the MDGs. Of all the MDGs, Viet Nam has made the most impressive progress on MDG 1 on poverty reduction. From a poverty rate of 58.1 percent in 1993, Viet Nam successfully reduced poverty to an estimated rate of 14.5 percent in 2008 – a reduction of 75 percent. The food poverty rate reduced by more than two-thirds, from 24.9 percent in 1993 to 6.9 percent in 2008. Poverty has been alleviated among all demographic groups, in urban and rural areas, and across geographical regions. Progress in reducing malnutrition has also been significant, falling from 41 percent to 11.7 percent in 2011²⁶. The proportion in extreme hunger fell from 24.9% in 1993 to 7% in 2008 (MDG 2010). It achieved universal primary education in 2000 and is on track to achieving universal secondary education. It had reduced under-five mortality from 58% in 1990 to 24% in 2010 while infant mortality rates fell from 44.4% to 16% over this period.

2012 poverty rates in Hoi An and Dong Hoi are 2.15% and 2.05% respectively, compared to the national poverty rate of around 12%. While poverty rates in the two cities appear to be low, social research indicated that residents of Hoi An and Dong Hoi are facing serious climate change impacts with high temperatures, lower agricultural productivity and income, household cost of living increases due to use of cooling devices, additional costs for climate change mitigation measures, increased incidence of water borne diseases as well as other environmental health concerns. Residents are aware of climate change and attribute the disruptions of seasonal cycles to human activities. Residents expressed the opinion that planning for climate change adaptations is a challenge for city governments and for city inhabitants. The project will contribute to capacity building in climate change planning and dissemination of city government climate change plans.

²⁶ *UNDP Report on Achievement of MDGs – Vietnam. 2011*

Table 11: Climate Change Adaptations Currently Practiced in Dong Hoi and Hoi An

Purpose	Measures
Adapt to hot weather	<p>The following measures have been taken depending on the economic condition of each family:</p> <ul style="list-style-type: none"> - Build house with eaves to avoid direct sunlight. - Replace iron roofing sheet with tiled roof. Poor families line the underside of the iron roof with cardboard or spongy material. - Plant creepers in front yard and trees to provide heat barrier. - Wear mufflers and long sleeved shirts when going outside. - Equip the house with air conditioners and electric fans. This method increases costs for electricity but to be comfortable in the hot season, most families with sufficient economic means use this method. - Go for a walk along Nhat Le embankment to seek cooler air.
Adapt to typhoon and flood	<ul style="list-style-type: none"> - Build typhoon and flood resistant houses. - For old houses, apply methods to strengthen the house such as cross bracing, higher house foundation, ties for the roof. - Store foods and essential stuff before flood season comes.
Reduce costs and protect health	<ul style="list-style-type: none"> - Women and also men often wear muffler and long sleeved shirt when going out to avoid heat affecting their skin and body. - Walking, jogging or doing exercise along Nhat Le embankment/park in the morning and evening to relax. - Making local tea from herbs to drink. Informants believe that this tea keeps their body cool and aids in digestion. - Apply basic methods to reduce electricity use such as switch off electrical equipment/light when it is not necessary, regulate air conditioner at 25-26oC; regulate electric fan at level 1 or 2. - Residents are concerned about dangerous food which comes from China or unknown origins, so to protect the health of their family, they now tend to grow vegetables, fruit trees and raise poultry for food.
Adaptations in cultivation and husbandry	<ul style="list-style-type: none"> - Plough deep and rake the field carefully before planting rice, grain or other crops to deter insects, vermin. - Pay more attention to the growth of rice fields and livestock. - Apply new rice variety that can stand cold weather-but result of yield is lower than normal rice seeds. - Clean up animal and poultry cages regularly and keep the animals warm in winter.
Adaptation in aqua culture	<ul style="list-style-type: none"> - Clean pond carefully before cultivation. - Invest in good drainage system for cultivated pond. - Assess quality of water and salinity regularly
Adaptations in fishing practice	<ul style="list-style-type: none"> - Watching weather forecast regularly - Equip and connect fishing boat with radio, walkie talkie, .v.v - Change or Upgrade to a vessel with higher capacity to be able to go further off shore for fishing.

The project's objective is to improve access to climate resilient infrastructure and urban environmental services in Dong Hoi and Hoi An. The key poverty and social issues are the need for affordable and sustainable municipal services in light of climate change vulnerability and environmental pressures arising from tourism. Affordable municipal services and climate change adaptation can be viewed as poverty prevention measures, as the economic impacts of climate

change can cause those on or near the poverty line to become poor. Through water and wastewater affordability measures and improved flood, erosion and salinity control, the project will contribute to strengthening community and individual resilience while at the same time building capacity in government agencies and socio-political organizations to better manage the environment, plan and prepare for climate change and implement inclusive growth in urban and peri-urban areas. Beneficiaries will include local residents, staff of project related agencies and socio-political organizations, private sector enterprises and visitors to the cities.

The project will deliver benefits to poor and vulnerable households through infrastructure improvements (water source security, increased wastewater networks, improved peri-urban services, flood and erosion control), affordability support funds to be managed by the Women's Union in each city and opportunities for participation in sub-component design. Pro-poor design measures (e.g., subsidies and/or socialized tariffs) have been included to ensure beneficiary access to project water supply and wastewater systems. Pro-poor livelihood support programs such as recycling will be strengthened and targeted employment opportunities (i.e. labour on project sites) made available to vulnerable residents, including women and the poor.

The urban development and climate change adaptation components of the project will assist the Hoi An government to spread the benefits of development to peri-urban areas. The project will contribute to flood prevention and erosion control while also increasing resident safety through constructing potential escape routes in the event of a catastrophic natural disaster such as a tsunami. The new urban areas will extend water and wastewater services into the peri-urban areas and will incorporate climate change adaptation measures. Additional higher income groups living in new urban areas will increase livelihood opportunities for the poor on the outskirts of Hoi An.

4.5 Willingness to Pay and Affordability of Services

Wastewater connection is a priority issue for the businesses and residents of Dong Hoi city. With increased awareness of the health and environmental impacts of untreated wastewater, more residents are anxious to connect to a wastewater system. Some businesses have constructed their own wastewater treatment plants but others are willing to connect when the service becomes available. Affordability of connection is a barrier for some households in lower income areas. Special pro-poor assistance measures will be required for the project to ensure equitable access to project benefits.

Table 12: Demand for Public Services – Business Responses

Needs of service	Clean Water		Wastewater		Solid waste	
	Number	%	Number	%	Number	%
Businesses intend to connect	1	100%	26	83.87	1	100
Businesses do not intend to use	0		5	16.13		

Those not wanting to connect to the wastewater system have already built their own wastewater plants to serve their enterprises

Table 13: Willingness to Pay for Wastewater Connection – Resident Responses

Willing to pay – at what level	% of respondents	% of total connection costs that HHs are willing to pay
1. The lowest	58%	20%
2. moderate	27%	35%
3. Highest	.5%	80%
4. Unwilling to pay	15%	-
<i>Average percentage of connection cost that HHs are willing to pay</i>		25%

In Hoi An, respondents feel that electricity and water prices are high compared to the average income of the households, so they do not support increases in the prices. If the prices must be increased to improve the service quality, they are only willing to pay a maximum of 5% higher than the current rate. Respondents indicated that there should be policies to provide a certain amount of water free or through a cash support program to ensure that the poor households have access to water services for their basic needs. Among the basic environmental services, the priority for residents in Hoi An is the improvement of water supply system and organization of wastewater collection and treatment.

Table 14: Reasons Given for Not Being Willing to Connect to the Water Supply System

Commune	Have decent water system (Drilled well)	Cannot afford	Use less than the minimum contract	Share with someone/ relatives	Others
Thanh Ha commune	404	12	18	10	-
Tan An commune	68	26	-	-	-
Cua Dai commune	74	51	-	-	-
Cam Thanh commune	-	12	-	7	-
Minh An commune	30	5	6	-	-
Cam Pho commune	49	16	35	-	-
Son Phong commune	-	-	-	-	-
Cam Nam commune	111	57	-	5	-
Cam Ha commune	218	30	29	-	-
Cam Kim commune	4	-	-	-	-
Cam Chau commune	15	7	-	-	-
Total	973	216	88	22	-
Rate (%)	74,90	16,63	6,77	1,69	-

Water quality is the biggest concern of surveyed enterprises, followed by service capacity and price. 50.1% of respondents are dissatisfied/very dissatisfied with water quality – sometimes the water is turbid and contains alum. 25% are dissatisfied with service - in their opinions, the current water supply capacity is weak. There is inadequate supply in summer. 15.6% are dissatisfied with price. Table 15 shows the level of satisfaction with the water supply system.

Table 15: Level of Satisfaction of Water Supply System - Enterprises

Level of satisfaction	<i>Very satisfied</i>	<i>Satisfied</i>	<i>OK</i>	<i>Dissatisfied</i>	<i>Very Dissatisfied</i>	No comment
Service						
Number	0	8	13	8	2	1
Percentage	0.0%	20.0%	32.5%	20.0%	5.0%	2.5%
Cost						
Number	0	9	18	5	0	0
Percentage	0.0%	28.1%	56.3%	15.6%	0.0%	0.0%
Water quality						
Number	1	5	10	14	2	0
Percentage	3.1%	15.6%	31.3%	43.8%	6.3%	0.0%

4.6 Gender Context

Viet Nam holds a reputation throughout the region for relative gender equality and has been able to minimize gender gaps in areas such as education, access to health care, and some aspects of employment. Viet Nam has made strong progress on its gender equality targets. It has been very successful in increasing girls' participation in education at primary and secondary levels. The labour force participation rate is 73 percent for women, compared to 82 percent for men. Women's representation in the National Assembly is currently 24.4 percent²⁷.

Over the last few decades, Viet Nam has made striking progress in improving people's wellbeing and reducing gender disparities, reflecting the country's remarkable efforts at reducing poverty and the government's commitment to achieving gender equality. Efforts to narrow gender gaps and invest in human capital have made Viet Nam one of the countries in East Asia that has seen the most rapid change in closing gender gaps in 20 years as of December 2006. These efforts range from the successful delivery of educational and health services for both females and males to improvements in accessing opportunities to work and participate in decision-making. However, there are still differences especially among the poor and vulnerable households in rural and mountainous areas.

4.6.1 Gender - Legal Framework

Viet Nam is strongly committed to gender equality and women's empowerment, as reflected in the Law on Gender Equality, 2006—supported by Asian Development Bank (ADB) technical assistance—that guarantees equal rights to women and requires gender strategies at the ministerial level. The Gender Equality Department was created in the Ministry of Labor, Invalids, and Social Affairs to help implement the Law on Gender Equality. In 2007, Viet Nam passed the Law on Domestic Violence Prevention and subsequently launched a public awareness campaign targeting men. The government in July 2011 adopted the National Program on Gender Equality 2011-2015. Other important legislation adopted to protect women's rights includes the Law on Anti-Human Trafficking, 2011. The penal code provides the legal framework for prosecuting crimes of rape, including marital rape under the domestic violence law.

The Viet Nam Women's Union (VWU), a mass organization, has created a vast network of members from the central to the grassroots level, with branches in every province and commune.

²⁷ UNDP Report on Achievement of MDGs – Vietnam. 2011

The VWU implements an array of programs in a range of sectors, including health, education, credit, and training, to support women's development. Women have to become members of the VWU to receive support, which pays special attention to the poor. The VWU is thus an effective mobilizing force for gender equality, but uneven capacity among VWU officials constrains effectiveness, particularly in ethnic minority areas.

4.6.2 Key Gender Issues

The ADB CPS identifies low women's participation in public decision making as a key gender issue in Vietnam. In general, the workforce in Viet Nam has low skills, with 85-90% of the Vietnamese workforce found in the informal economy (e.g., domestic enterprise, informal and formal household businesses and agriculture). Women comprise a greater proportion of this sector due to household responsibilities that limit mobility and opportunities to be away from the house for long hours. The Department of Statistics estimates that 81% of the female workforce works in the informal economic sector, comprising about 60% of the informal sector. The PPTA Institutional Analysis and Capacity Assessment team identified gender knowledge gaps at all stakeholder levels, as well as few women in decision-making positions within the IAs.

The PPTA team found that at the city and agency level, gender disaggregated data is difficult to obtain, a shortcoming that will be addressed for project performance reporting. The Public Perception surveys and other focus groups/interviews carried out in both cities highlighted the important role that the VN Women's Union plays with regard to environmental management and mitigation programs at the community level, a need which will increase as climate change impacts intensify. Women in particular expressed concern about an increase in dengue fever over the past few years, as well as other health impacts related to high heat and irregular seasonal cycles.

The project design includes women in all capacity building activities carried out by the project with staff of the four target groups i.e. Project-appointed Staff, Staff of Collaborating and related Agencies, Staff of Project Implementing Agencies and Staff of Communes/Wards in Cities including staff and representatives of Women's Union, Youth Union and Farmer's Union. The training plan with a focus on gender equity will be further defined during project implementation. Gender disaggregated performance indicators as well as gender action plans will be prepared for all agencies engaged in capacity building activities. The staff of the Women's Unions in the two cities will be trained in climate change planning and adaptation, as well as being engaged to manage the proposed Affordability Funds, easing connection costs and contributing to climate change adaptations.

An international (6 pm) and a national gender specialist (12 pm) will assist with GAP implementation, monitoring and reporting. The GAP has focused on capacity building for female staff - an estimated 30% of capacity building participants will be women; 50% of climate change capacity building facilitators will be women – as well as supporting the important WU role in environmental management, service affordability and livelihood support. The Hoi An WU recycling income generation program will be supported to involve another 100 women. Resources for GAP implementation will come from project capacity building budgets, consultant budgets and Affordability Fund allocations.

4.6.3 Gender Action Plan

Project Outputs	
<p><i>Project Output 1</i></p> <p>Hoi An Urban Environmental Services Improved & Climate Change Adaptation Planning Adopted</p>	<ul style="list-style-type: none"> • Effective gender-sensitive audio and visual materials developed to raise awareness at the ward/commune level of Hoi An (completed) Climate Change Action Plan through public meetings and discussions. • When designing Lai Nghi conjunctive use scheme (drinking water/irrigation/recreation), ensure 50% women's participation in consultations and increase the input of poor women farmers and female residents concerned about water borne health issues. • Support the existing women's union role in emergency measures by including WU management staff in the design of Early Warning Systems. • Increase recycling efforts through additional support to VWU recycling income generation program to increase program beneficiaries by 100 women. • Engage the Women's Union in initiating and managing affordability funds for water service connection and climate change adaptation measures for at least 1300 poor and vulnerable HHs. • At least 50% of facilitators of climate change mitigation measures and adaptation planning sessions are women. • At least 30% of unskilled project labourforce are women with equitable pay.
<p><i>Project Output 2</i></p> <p>Dong Hoi Urban Environmental Services Improved & Climate Change Adaptation Planning Adopted</p>	<ul style="list-style-type: none"> • Effective gender-sensitive audio and visual materials developed to raise awareness at the ward/commune level of Dong Hoi (incomplete) Climate Change Action Plan through public meetings and discussions. • Engage the Women's Union in initiating and managing affordability funds for wastewater system connection and climate change adaptation measures for at least 8000 poor and vulnerable HHs who cannot afford to pay. • Support the existing women's union role in emergency measures by including WU management staff in the design of Early Warning Systems. • <i>VN Women's Union supported to establish revolving fund for poor & pro-poor and vulnerable HHs to improve 7200 rural latrines/septic tanks and connection costs.</i> • At least 30% of unskilled labour force are women with equitable pay
<p><i>Project Output 3</i></p> <p>Capacity to implement climate resilient and green growth plans strengthened</p>	<ul style="list-style-type: none"> • PMU staffing includes a equitable proportion of women. • At least 25% of PMU/agency/government staff trained in capacity building programs (estimated at 3475 participants) are women. • All PMU/project related agency/government staff trained in Gender and Development. • All Women's Union city representatives, commune/ward leaders and commune/ward environmental staff receive training in environmental management and climate change assessment and planning including public health awareness. • Gender consultant and financial resources for GAP implementation provided. • Gender-inclusive monitoring, evaluation and reporting with sex-disaggregated data in project management and information system ensured. • Gender training programs include integration of gender analysis into climate change strategies, action plans and screening criteria.
<p>Budget for GAP implementation</p>	<ul style="list-style-type: none"> • GAP capacity building activities will be financed through the Institutional Capacity Building component (USD4.58mill) intended to (i) help ensure that project implementation will fully comply with ADB's policies and operational requirements; (ii) improve urban planning and management, climate change adaptation and mitigation, operation and maintenance, and financial management and cost recovery; and (iii) help local communities increase awareness of public health and environmental management. • The Gender Consultant will be funded through the project consulting services budget. • Affordability Funds (USD 200,000) to be managed by the Women's Unions in each city will be funded through project activity budget.

4.7 Challenges for Urban Managers

Evidence of direct climate change impacts i.e. heatwaves, flooding, storm events leading to changes in the urban environment such as fresh water supply, pollution, and changes to the biological system i.e. crop productivity, increased incidence of water borne diseases leading to social, economic and demographic disruptions i.e health impacts, higher costs of living, damage to infrastructure. It is evident from the descriptions of climate change impacts and the challenges facing city governments that there is a need for mechanisms and tools which can be used to examine differential social impacts of climate change within a policy and practice framework. Climate change initially will affect society disproportionately, with the poor more at risk due to livelihood and cost impacts. But economic systems (tourism operations, marketing agents, etc.) will suffer in the longer term, leading to downward spirals in local economies, thereby increasing poverty at all levels.

5 Environmental & Social Safeguards

5.1 ADB Environmental Safeguard Requirements

In 2005, the Asian Development Bank (ADB) embarked on a review process of its three safeguard policies on the environment, involuntary resettlement and Indigenous Peoples. The 2009 Safeguard Policy Statement is the result of this four-year process. NGO Forum on ADB's network members was heavily involved in monitoring and commenting the review process.

In July 2009, the ADB approved its new Safeguard Policy Statement (SPS), which became effective in January 2010. The new Safeguard Policy Statement replaces the ADB's previous separate policies on each of these areas: Policy on Indigenous People (1998), Involuntary Resettlement Policy (1995) and Environment Policy (2002). Key documents related to the new Policy include:

- ADB, 2009. Safeguard Policy Statement, Manila.
- ADB, 2012. Environment Safeguards, a Good Practice Sourcebook, Draft Working Document, Manila.

The standards contained in the ADB's Safeguard Policy Statement have far-reaching impacts. They determine the ADB's environmental and social obligations for its annual and rising lending volume and influence emerging national legal frameworks in Asia. Due to the Bank's increasing support for private sector operations, the Safeguard Policy Statement also determines how private financing, supported by the ADB, operates in Asia.

The overarching statement on ADB's Commitment and Policy Principles (Chapter V) says that the ADB's safeguards have the following objectives (SPS, p 15): i) avoid adverse impacts of projects on the environment and affected people, where possible; ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

5.1.1 General Requirements

The Policy Delivery section (Chapter V B, paras. 53–64) lists general requirements that the ADB is obliged to follow in regard to: project screening and classification, information disclosure, consultation and participation, due diligence, monitoring and reporting, local grievance redress mechanisms and the Bank's Accountability Mechanism.

- **Project screening and classification:** The Policy stipulates that the ADB will undertake project screening as early as possible to i) determine the significance of adverse impacts; ii) identify the level of assessment and institutional resources required; iii) determine disclosure requirements (para. 50).
- **Information disclosure:** In line with the ADB's Public Communications Policy, the Policy requires (para. 53) that for environment Category A projects, draft environmental impact assessments must be posted on the ADB's website 120 days before project approval. For draft environmental assessment and review frameworks, draft resettlement frameworks and/or plans and draft Indigenous Peoples planning frameworks and/or plans, the Policy only stipulates that these documents must be provided by the borrower/ client and posted on ADB's website before project appraisal, as follows: i) final or updated environmental impact assessments and/or initial environmental examinations, resettlement plans, and Indigenous Peoples plans upon receipt (by the ADB), and ii) environment, involuntary resettlement and Indigenous Peoples monitoring reports submitted by borrowers/clients during project implementation upon receipt (by the ADB).
- **Consultation and participation:** The general provisions on consultation and participation are mostly phrased as aspirations. The Policy states that the ADB "is committed to working with borrowers/ clients to put processes of meaningful consultation and participation in place." Meaningful participation is defined as: i) beginning early in the project preparation

stage and being carried out on an ongoing basis throughout the project cycle; ii) providing timely disclosure of relevant and adequate information that is accessible to affected people; iii) being free of intimidation and coercion; iv) being gender inclusive and responsive; and v) enabling the incorporation of all relevant views of affected people and other stakeholders in decision-making (para. 54).

- **Due diligence and review of safeguard assessments and plans:** Due diligence refers to the ADB's process of assessing safeguard issues through field visits and desk reviews as well as through examining relevant safeguard documents (such as environmental impact assessments, resettlement plans, Indigenous Peoples' plans). Through its due diligence processes, the ADB confirms that all potential environmental and social risks are identified. If they cannot be avoided, it ensures that appropriate mitigation measures are identified (SPS, para. 56).
- **Monitoring and reporting:** The monitoring obligations are merely required to be "commensurate with the project's risks and impacts". For highly complex and sensitive projects, the ADB requires the borrower/client to engage an independent advisory panel" (SPS, para. 57).
- **Local grievance redress mechanisms:** The Policy requires the borrower/client to set up and maintain a grievance redress mechanism at project level (SPS, para. 59). This mechanism does not replace the ADB's accountability mechanism, but is intended to solve grievances at the local level. Affected people can also take complaints to the ADB's Accountability Mechanism. The Accountability Mechanism Policy merely requires complainants to demonstrate that they have sought to address their complaint with management.

5.1.2 Environmental Requirements

More precisely as Environment aspects are concerned, the objective of the Policy is to "ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process" (SPS, p. 17). The main Environmental Safeguard requirements are the followings:

- **Categorization and information disclosure:** The Policy uses a categorization system to reflect the significance of a project's potential environmental impacts. "A project's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence" (SPS, para. 50). The following categories exist:
 - ✓ **Category A:** significant adverse environmental impacts that are irreversible, diverse or unprecedented. Category A projects requires a full-scale Environmental Impact Assessment (EIA). A draft EIA, including the Environmental Management Plan, must be made available on the ADB's website at least 120 days prior to Board approval.
 - ✓ **Category B:** less adverse environmental impacts that are site specific, few of which are irreversible, and mitigation measures that can be designed more readily than for Category A projects. Category B projects require an initial environmental evaluation.
 - ✓ **Category C:** minimal or no adverse environmental impacts. Category C projects require further environmental assessment actions/documents.
 - ✓ **Category FI:** projects involving ADB funds to, or through, a financial intermediary. Category FI projects require an Environmental and Social Management System.

Final or updated EIAs and/or initial environmental examinations must be made available upon receipt on the ADB's website.

- **Assessment process:** Environmental impacts must be determined in consultation with affected people and concerned non- government organizations (NGOs). For category A projects, the borrower/client is required to undertake an assessment of options that looks at alternatives to the project's location, design, technology and components. The options assessment will also examine the "no project" alternative. The borrower/client must present

the rationale for selecting the particular project details, including a cost-benefit analysis that takes into account environmental costs and benefits of the various alternatives considered (SPS, Appendix 1, para. 4).

- **Type of impacts:** The types of impacts related to the environment include physical, biological and socioeconomic impacts. These can relate to occupational health and safety; community health and safety; vulnerable groups; gender issues; and impacts on livelihoods and physical cultural resources (SPS, Appendix 1, para. 5). For Occupational and Community Health and Safety aspects, the Policy
- **Project site/scope:** The project site covered by the environmental safeguard provisions in the Policy is defined as: “the primary project site(s) and related facilities that the borrower/client (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, tunnels, access roads, borrow pits and disposal areas, and construction camps”. This definition also includes: associated facilities that are not funded as part of the project, but “whose viability and existence depends exclusively on the project”; “areas and communities potentially affected by cumulative impacts from further planned development of the project”; and predictable impacts caused by the project “that may occur later or at a different location” (SPS, Appendix 1, para. 6).
- **Transboundary impacts:** The environmental assessment process must identify potential transboundary effects, such as air pollution and increased use or contamination of international waterways. It must also identify global impacts, such as the impact of greenhouse gases and impacts on endangered species and habitats (SPS, Appendix 1, para. 7).
- **Environmental planning and management:** If environmental impacts are identified, the borrower/ client is required to prepare an environmental management plan describing how potential impacts and risks will be addressed (SPS, Appendix 1, para. 12).
- **Consultation and participation, grievance mechanism:** The consultation process and grievance mechanism process follows the same provisions as laid out in the general requirements (see above) (SPS, Appendix 1, paras. 19 and 20).
- **Reporting and monitoring:** The Policy states that “the extent of monitoring activities will be commensurate with the project’s risks and impacts” (SPS, Appendix 1, para. 21). For Category A projects, the borrower/client is required to retain qualified external experts or qualified NGOs to verify its monitoring information. The minimum requirements are semi-annual reports during construction for Category B projects, and quarterly monitoring reports during construction for Category A reports. For projects with likely ongoing impacts during operation, annual monitoring is required. Monitoring reports must be posted in a location accessible to the public (SPS, Appendix 1, paras. 21 & 22).
- **Unanticipated environmental impacts:** If unanticipated impacts occur during project implementation, the borrower/client is required to update the environmental assessment and environmental management plan or prepare a new assessment and plan (SPS, Appendix 1, para. 23).
- **Biodiversity conservation and sustainable natural resource management:** This section (SPS, Appendix 1, paras. 24 – 49) contains requirements regarding the following issues: modified habitats; natural habitats; critical habitats; legally protected areas; invasive alien species; management and use of renewable resources; pollution prevention and abatement (resource conservation, energy efficiency, waste, hazardous materials, pesticide use and management, greenhouse gas emissions); health and safety (occupational health and safety and community health and safety); and physical cultural resources (SPS, Appendix 1, para. 24).

5.1.3 Adaptation to Funding Options

In recent years, the ADB has increased its use of different forms of finance modalities, such as programme lending, sector lending and multi-tranche financing facilities. The common feature of these lending modalities is that they consist of upfront lending, usually in large amounts, and that the project details and subprojects are not always known at the time of Board approval. The Safeguard Policy Statement contains provisions for each of these types of lending:

Programme lending: For programme loans, the borrower/client is required to evaluate any potential safeguard impacts in regard to the environment (also resettlement and/or Indigenous Peoples) and to identify appropriate mitigation measures. The borrower/client must prepare a matrix of potential impacts of each policy action, with the corresponding mitigation measures (SPS, Appendix 4, para. 2).

Sector lending: For sector investments with any likely safeguard impacts, the borrower/client must agree on an environmental assessment and review framework (also resettlement framework and/or an Indigenous Peoples planning framework) before project approval is given by the ADB (Annexes 1 to 3 of Appendix 4 describe the components of these frameworks). One or more sample subprojects must be identified and appraised prior to approval of the sector project. For these subprojects, the borrower/client must prepare relevant documentation, including: environmental and social impact assessment reports, environmental management plans, resettlement plans and Indigenous Peoples plans. All the Policy's safeguard requirements apply to all subprojects and their components (SPS, Appendix 4, paras. 3 – 8).

Multi-tranche finance facilities: For multi-tranche finance facility projects with any safeguard impacts, the same process applies as for sector projects (SPS, Appendix 4, paras 9 – 10). Multi-tranche finance facilities are loans which are disbursed in several tranches. At the time of Board approval, only the details of the first tranche are available, and subprojects of the multi-tranche finance facilities are often only identified later in the investment cycle.

Emergency assistance loans: The Policy stipulates that in cases where preparation of safeguard documents, such as an EIA, resettlement plan and/or Indigenous Peoples plan, is deemed not possible before Board approval, frameworks, such as those required for sector or multi-tranche finance facility loans, must be prepared (SPS, Appendix 4, para. 11).

Financial intermediaries: Where financial intermediary (FI) projects are likely to have safeguard impacts, the financial intermediary is required to "have in place or establish an appropriate environmental social management system (ESMS) to be maintained as part of their overall management system to meet national laws and/or ADB's requirements for FI projects" (SPS, Appendix 4, para. 13). An ESMS must include the financial intermediary's: (i) environmental and social policies; (ii) screening, categorisation and review procedure; (iii) organisational structure and staffing, including skills and competencies in environmental and social areas; (iv) training requirements; and (v) monitoring and reporting processes (SPS, para. 66). Where subprojects financed by the financial intermediary are likely to have environmental or social impacts, the financial intermediary must ensure that the subprojects meet the ADB's relevant safeguard requirements including the submission of relevant safeguard documents (EIA, resettlement plan and Indigenous Peoples plan) according to the Policy requirements (SPS, Appendix 4, para. 15).

5.1.4 Strengthening and Use of Country Safeguard Systems

The Policy states that the ADB is committed to strengthening and using country safeguard systems (CSS). This means that the borrowing country's legal and institutional framework would be applied in regard to the social and environmental impacts of a project instead of the ADB's safeguard policy requirements.

The approach taken by the ADB to using country safeguard systems has two key components:

- First, in order to apply the country system, the ADB must conduct an "equivalency assessment" which evaluates the country's provisions against ADB safeguard requirements. Only if the country's provisions are found to be equivalent to that of the ADB can the country system be applied.

- Second, the borrowing country must be found to have the implementation practice, track record, and the capacity and commitment to implement the applicable regulations. This provision is referred to as the “acceptability assessment”.

The Policy states that “to the extent possible, the proposal for the strengthening and use of the CSS, together with its justification, is presented in the country partnership strategy or in country partnership strategy progress reports” (SPS, Appendix 6, para. 14). In addition, the Policy commits the ADB to hold in-country consultations with stakeholders, including governments and NGOs, on the equivalency and acceptability assessments. The final equivalency and acceptability assessments must be disclosed on the ADB’s website upon completion (Appendix 6, para. 14).

5.2 Vietnamese Environmental Safeguards

The principles and procedures for the environmental assessment of projects in Vietnam are founded on the Law on Environment Protection (EP Law) that was first issued in 1993, revised in 2005 and put into effect in 2006. The EP Law provides the basis for the requirement for environmental assessment and for public consultation. Under EP Law, there is a decree and a circular that relate to environmental assessment and institutional arrangements for the approval of environmental assessments:

- Decree No. 29/2011/ND-CP (2011) on strategic environmental assessment, environmental impact assessment and environmental protection commitment and planning. This decree specifies that environmental assessment must be carried out at project feasibility stage, and the conditions under which an Environmental Protection Commitment (EPC) or an Environmental Impact Assessment Report (EIAR) is required, and
- Circular No. 26/2011/TT-BTNMT guiding in detail numbers of articles of Decree No. 29/2011/ND-CP, on strategic environmental assessment, environmental impact assessment and environmental protection commitment. The Circular No 26/2011/TT-BTNMT replaced Circular No 05/2008/tt-BTNMT ON September, 2, 2011.

Two types of environmental assessment reports are considered, an EIAR or an EPC. In broad terms, an EIAR is required for project types listed in the Decree No. 29/2010/ND-CP and deemed to have potential for significant adverse impacts, as well as those located in protected areas or other environmentally sensitive areas. Project requiring EIAR is not necessarily equivalent to ADB category A project. A project requiring EIAR may be classified as environmental category A or B according to the ADB’s Safeguard Policy.

In each Province the Department of Natural Resources and the Environment (DONRE) has established a Provincial Environment Administration (PEA). The PEA has an EIA Division specifically in charge of EIA related matters at provincial level and which also provides guidance to District and Commune level on these matters.

The EIAR is submitted to the Provincial Environment Administration (PEA) that provides certification on approval. The Provincial Project Management Units (PPMU) submits copies of the approved EIAR and certification to the Commune Peoples’ Committees. The PPMU also prepares a summary of the report for public display in the relevant Commune People’s Committee office.

The essential differences between preparation processes for an EPC and an EIAR are i) the level of field investigation, analysis and reporting required; and ii) the requirement for formalized consultation within the EIAR. By comparison, the scope and level of safeguard investigation required for an ADB IEE could be acceptable to prepare an EIAR.

Smaller projects without the potential for significant adverse impacts will be subject to a lower level of assessment in the form of EPC. EPCs are required to be submitted for appraisal at the time of Project Investment Report preparation. According to Circular No. 26/2011/TT-BTNMT which details the procedures for EPC, the authority which receives and certifies the EPC is the District People’s Committee of the locality where the project is located. Decree No. 29/2011/ND-CP specifies procedures for projects implemented in two districts or more: the project owners can register the EPC in any of the district people’s committee concerned, at their convenience.

The content and format of the EPC is detailed in an appendix to Circular No. 26/2011/TT-BTNMT. The EPC must include information on mitigation measures that will be taken. The EPC obliges the Provincial People's Committees (PPC) to ensure that the specified mitigation is carried out during project implementation.

5.3 Environmental Impacts

A screening exercise carried out for both Dong Hoi and Hoi An led to the conclusion that project components in both cities will have minor impacts on the environment being mostly implemented in urbanized areas. Results of the screening were presented in the Interim Report with the recommendation that the project may be classified as Category B project in accordance with ADB Safeguard Policy Statement (SPS) in both cities.

Two Initial Environmental Evaluations (IEE) have been prepared, one for each city, in compliance with ADB SPS requirements. The two reports provide information and analysis of the applicable institutional and regulatory framework (Chapter 2), the description of the Project proposed components (Chapter 3), the baseline environmental and social situation (Chapter 4), the analysis of potential impacts (Chapter 5), the alternative development options (Chapter 6), the public consultation activities (Chapter 7), the proposed grievance and redress mechanism (Chapter 8) and the environmental management plan (Chapter 9).

Environmental due diligences were also conducted for associated facilities including (i) the Nhat Le 2 bridge (under construction) and the Duc Ninh wastewater treatment plant (under construction) in Dong Hoi, and (ii) the Cua Dai bridge (under construction) and the Hoi An WWTP (construction not started yet) in Hoi An.

An analysis of the safeguards related to Climate Change (CC) was carried out on the basis of the most recent baseline scenarios adopted at national level in Vietnam. Scenarios relate to temperature change, rainfall evolution and sea level rise.

5.3.1 Main Conclusions for Dong Hoi

In Dong Hoi, the sub-components of the Urban Environment and Climate Change Adaptation Project selected for Asian Development Bank financing will significantly improve the environmental conditions and quality of life of the population in the city through the following results:

- Improvement of the wastewater management for Dong Hoi through complementing the WB on-going project with secondary and tertiary networks; direct benefits are related to (i) improvement of quality of life in the central part of the city, (ii) improvement of public health conditions and (iii) reduction of pollution loads to surface water and underground water.
- Promotion of sustainable urban development for Bao Ninh peninsula in the respect of existing natural resources and hazards;
- Promotion of coastal dune system restoration and rehabilitation with direct benefits related (i) to better protection against natural extreme events (typhoon, flooding from the sea) and (ii) to improvement of biodiversity, both vegetal and animal;
- Reduction of anticipated impacts on land acquisition and involuntary resettlement by revising the road development strategy;
- Promotion of sustainable urban drainage strategy (SUDS) based on maximization of drainage water infiltration with direct benefits (i) on reduction of stormwater drainage investment, (ii) reduction of pollution load to the Nhat Le river and (iii) limiting underground penetration of sea water;
- Contribution to long term economic development of Dong Hoi through the development of new urban areas on Bao Ninh taking due consideration of prevailing climate change risks (sea level rise and flooding) and direct effects on the quality of life of future residents and tourists.

The city is located along the Nhat Le estuary, a river draining a catchment area of 2,650 km². Due to the low and flat topography, to the discharge in the river which drains 77% of the annual runoff during the rainy season from September to December, to the occurrence of typhoons particularly in October and November, Dong Hoi is confronted to recurrent floods almost every year, some years exceptional and devastating. Due to the Climate Change, the sea level rise is expected to exacerbate the flood situation in the coming decades.

The overall physical infrastructure to control floods in the Nhat Le river and estuary consists of river and sea dykes, a number of reservoirs, and some retention areas. At many places the existing dyke crest is about 0.6 to 0.7 m below the design elevation. At present 47 reservoirs have been constructed in the Nhat Le River basin of which 13 reservoirs are located in Dong Hoi City. However, there is no objective nor availability for flood control as the flood storage is too small, and they can only be used for mitigating early floods that have small flood peak discharges.

The project zone mainly consists of urban areas in Dong Hoi and open lands in Bao Ninh considered for urban development. The main natural area, the coastal dune system of Bao Ninh peninsula, has been already affected by on-going resort development, by drainage infrastructure and sand production. In the northern part of the peninsula, vegetation cover of the coastal dune has already been affected by the development works, weakening the protection potential of the dune against coastal erosion and flooding from storm surge. Biodiversity is limited, with only clear Casuarina forest on the dune and related fauna biodiversity is consequently poor.

In general, impacts related to project location will be mainly social and related to land acquisition but contrasted depending the areas concerned. Dong Hoi wastewater sub-component will not involve any impact regarding land acquisition or resettlement.

Impact on natural resources will be limited to the cut of few roadside trees during wastewater sub-component implementation in Dong Hoi. A 1 to 1 replacement policy will be respected. In Bao Ninh future urban development will involve the loss of about 2,000 Casuarina trees (planted species) growing on the landward side of the coastal dune. This loss will be compensated by the development of large green areas already included in the development plan and by the re-vegetation of the dune within the dune restoration and protection component of the project.

For Bao Ninh stormwater component, the PPTA proposed to rely on SUDS (Sustainable Urban Drainage System) rather than the conventional system initially proposed. A SUDS favors the natural infiltration of water into the ground. Direct benefits include (i) reduction of transfer infrastructures investments, (ii) reduction of pollution load to Nhat Le river and (iii) recharge of the coastal aquifer which limits the penetration of sea water.

The restoration of the coastal dune will improve the protection of the new urban development against sand transport by the wind and against the flooding risk from the sea. Coastal erosion will also be reduced, preserving the beaches and supporting the sustainable development of tourism in Bao Ninh.

No particular impacts, except the benefits listed above, are anticipated after the construction of the project components and during their operation. The road traffic will obviously increase in Bao Ninh thanks to urban development and to Nhat Le 2 bridge, but with limited impacts for the residents as the main roads are no longer crossing the villages as they do today and these existing roads have not been widened.

5.3.2 Main Conclusions for Hoi An

In Hoi An the five sub-components of the Urban Environment and Climate Change Adaptation Project selected for Asian Development Bank financing will also improve the environmental conditions and quality of life of the population through the following results:

- Improvement of the water supply security for Hoi An and nearby secondary centers through using and increasing the water storage capacity of the Lai Nghi reservoir; reduction of the risk of brackish water distribution in the network as observed today during short periods of the dry season; adaptation to climate change particularly sea level rise;

- improvement of public safety and adaptation to long term climate change, particularly flooding, through the raise of road 608 which will secure evacuation of population to safer areas in case of major flood;
- Reduction of flood impact on the ancient city by improving storm water drainage and storage through increasing Phap Bao reservoir storage capacity;
- Improvement of wastewater collection with beneficial effects on public health and on surface and groundwater quality;
- Contribution to Hoi An economic development through the development of new urban areas taking due consideration of prevailing climate change risks (sea level rise and flooding) and direct effects on the quality of life of future residents.

Hoi An is recognized as a World Heritage Site by UNESCO, the Ancient Town being an exceptionally well-preserved example of a South-East Asian trading port dating from the 15th to the 19th century. Quang Nam Province where Hoi An is located, is frequently hit by tropical storms and typhoons: From 1979 to 2010, 65 typhoons and 22 tropical depressions hit the Province, or an annual average of 2 typhoons and 0.7 tropical depressions.

The city is located along the Thu Bon estuary, a river draining a catchment area of 3,500 km². Due to the low and flat topography, the discharge in the river which drains almost 80% of the annual runoff during the rainy season from September to December, the occurrence of typhoons particularly in October and November, Hoi An is confronted to recurrent floods almost every year, some years exceptional and devastating. Due to the Climate Change, the sea level rise is expected to worsen the flood situation in the coming decades.

Surface water quality in the Thu Bon shows moderate pollution (Category B1), with the exception of excessive salinity. At present, salinity intrusion is observed in the estuary, directly linked to the tidal regime and the discharge of the rivers. The lower the discharge is, the farther the salinity front moves upstream the river. Measurements show the salinity front in the river reaches about 15 km from the mouth.

The project zone mainly consists of urban areas and agriculture, dominated by paddy. The main natural area, the coastal dune system, has been long utilised for resort development and sand production. Vegetation biodiversity is limited, with no forest and related fauna biodiversity is poor. However, a group of 4 islands, the Cham Islands, located about 16 km from the coastline are part of the Cu Lao Cham Marine Park, a nature reserve established since 1986, support a rich biodiversity but mainly aquatic.

By the end of 2011, population of Hoi An City was about 91,000 people. The city is considered as the most self-motivated in economic operation of Quang Nam province and one of the famous tourism spot of the country. With more than 10,000 beds, tourism is the leading activity of the place, complemented by agriculture and fisheries

Impacts related to project location will be mainly social and related to land acquisition. However, these impacts have been drastically reduced from the initial project design by the PPTA team during the mid-term mission.

Dredging of both reservoirs, but mainly Lai Nghi will generate a large volume of sediment of about 600,000 m³. The initial FSR considers its disposal next to Lai Nghi reservoir without more information. This option may use another 10 ha of agricultural land for disposal. Sampling and analysis of sediment under the PPTA confirms the sediment is not contaminated by heavy metals and its grain size distribution, mostly sand, satisfies requirements for fill. It is thus proposed to reuse the sediment for the fill of the other project components, the requirements of which will easily absorb all the sediment produced. This option will avoid additional land acquisition but will impose an intense truck traffic between production and consumption sites and a close coordination and scheduling of activities. Recommendations regarding hauling routes are provided in the IEE.

No detrimental impact is anticipated after construction and during operation of the project sub-components on flood occurrence; Phap Bao will improve stormwater drainage in the urban area.

No impact is anticipated on Thu Bon salinity and Lai Nghi water intake will be kept upstream the salinity front on the long term and despite CC and sea level rise thanks to the flood management plan proposed in the PPTA.

The risk of Lai Nghi reservoir water contamination by the wastewater of surrounding residential areas will become more sensitive as water will be used for drinking purpose. The PPTA has already included in the Lai Nghi project as mitigation measure, the development of a sewerage system along the reservoir shores collecting sewage from households and discharging it in the existing sewerage system of Hoi An.

No particular impact on air quality is anticipated from road 608 which will be only raised, not widened, so traffic is not anticipated because of the project. Cua Dai road will be a new road mainly surrounded by agriculture and the progressive development of its traffic should not pose particular issues regarding air quality.

5.4 Environmental Management Plan

As stated in the IEES, the main environmental impacts will happen during the construction activities. Because of the project located in an urban environment, risk of nuisances is higher: traffic congestion, temporary alienation of access, community facilities temporary disruption, noise, engine gas and dust release may temporary disturb the nearby communities. However, recommendations formulated in the EMP combined with a solid environmental contractual framework and an effective inspection of construction sites will definitely reduce these risks to an acceptable level.

5.4.1 Overall Organization

At the present level of the Project preparation, it is anticipated that the project will be developed under the following conventional conditions:

- Public investment, with the People's Committee (QNPPC and QB PPC) as the Executive Agency (EA) and the utility companies (QN WSC and QB URENCO) as the Implementing Agency;
- Creation of a Project Management Unit (PMU) under QNWSDC and based in Hoi An and under QB URENCO based in Dong Hoi. Thess PMU will receive the support of a Project Management Support Consultant (PMSU);
- Appointment of a Supervision Engineer to supervise design and construction of the Project components;
- Appointment of Construction Contractors.

The proposed organisation for the EMP is based on this general organisation.

Four levels of organization, fully complementary, will be set-up:

- The Government Implementing Agency (IA) through its PMU, which will have to provide for all aspects related to environment and social including (i) general supervision of activities carried out prior, during and after construction of the project and (ii) coordination with other stakeholders including other Government Agencies and IFIs involved;
- The Project Management Support Environmental Consultant (PMSEC) will assist PMU for all aspects dealing with environmental management preparation, provide environmental training to PMU staff and annual environmental audit of the construction sites.
- The Supervision Engineer Environmental Management Unit (SE-EMU), who is to provide coordination and supervision for all environment-related activities during construction, and to report regularly to the IA Project Director;
- The Construction Contractor Environment Health and Safety Unit (CC-EHSU), who is to provide resources for, and effective implementation of, all measures which are defined in the EMP and in the contract documentation in addition to health and safety aspects on site.

There will be one CC-EHSU per Project component under the responsibility of the main CC for this component and covering the needs for sub-contractors.

Environmental staff in the PMU, SE and CC is intended to be independent of construction staff. Environmental staff will work alongside construction staff, however they will report through separate channels up to the Project Director for the SE and to the executive management level for each CC concerned.

5.4.2 Stakeholder's Organization

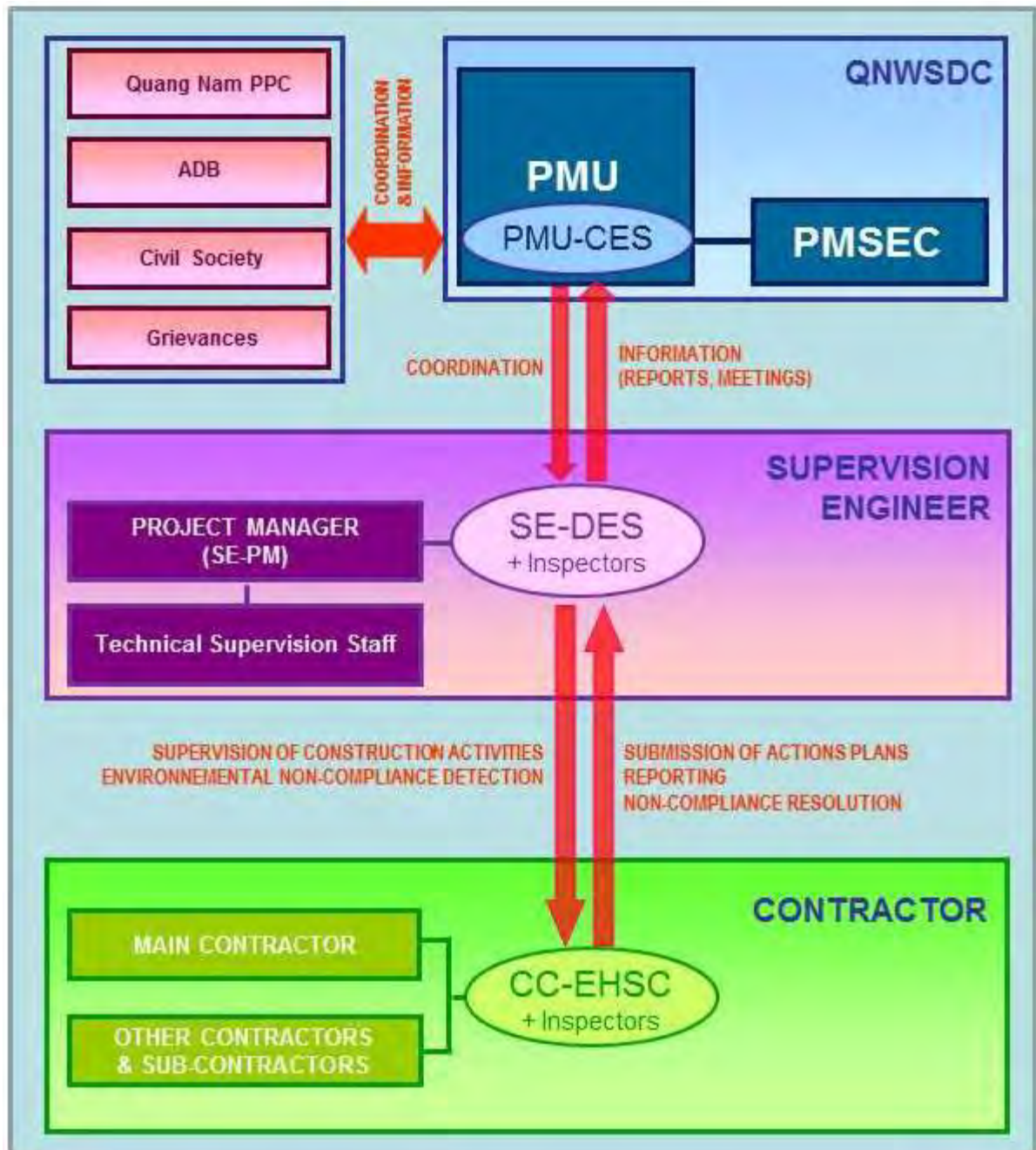
The IA-PMU will have an integrating role at the top of the organisation. It will be responsible for (i) informing the political and financial agencies of the correct implementation of the EMP and (ii) ensuring effective compliance in terms of E&S obligations and procedures in the implementation of the Project. To do this, it will appoint a Chief Environmental and Social (CES), whose role will be (i) to supervise the Project's environmental and social activities in the name of the IA and (ii) to ensure coordination with the international agencies (funding agencies, investors, panel of experts) and national agencies (other Government Ministries, NGOs). The PMU-CES will in particular follow up and ensure operations relating to compensation and resettlement of APs resulting from the implementation of the project components are progressing satisfactorily. The CES will be assisted in this supervisory role by the Project Management Support Environmental Consultant (PMSEC) which will work on a temporary but regular basis right from the start of the project and through to the first year of operation of the project.

The SE will set up within its Engineering Team an Environmental Management Unit (EMU) which will monitor implementation of the environmental measures and their performance. This team will be under the responsibility of a Director Environment and Social (DES) assisted by engineers and technicians responsible for environmental aspects directly related to the construction activities and social aspects related to health and safety on the sites, complaints expressed by the population, any disturbances or harmful impacts they are subjected to, claims for compensation for temporary disorders related to the construction activities and liaison with the traditional local authorities or representatives of the State. The EMU will include a team of Site Inspectors.

Each CC having responsibility for one of the main contracts will set up its own EHS Unit (EHSU) responsible for providing the interface with its construction team. Depending on how the contracts are distributed, certain contractors may group together to set up a common environmental team. Each EHSU will have an EHS Coordinator (EHSC) and Environment, Health & Safety (EHS) Inspectors.

Proposed organization is depicted on the following figure for the case of Hoi An; a similar arrangement is proposed for Dong Hoi.

Figure 26: Implementation Arrangement for EMP



5.5 Resettlement Plans

5.5.1 Introduction

The proposed Project's expected impact will be to improve the urban environment in two coastal cities of Vietnam: Hoi An and Dong Hoi. The Project's outcome will be improved access to climate change resilient urban infrastructure. An over-riding objective of this Project is to demonstrate better practices in managing climate change impacts on urban infrastructure via sustainable processes where cities take responsibility for repaying loans at ordinary commercial rates and manage public debt more effectively than in the past. This is an enormous challenge for Vietnam as components to be financed under projects, such as this one must be economically and financially sound, but also environmentally and socially sound to meet both GOV and ADB safeguard policies and also reflect better practices in managing urban environments. This means that involuntary resettlement if and when considered necessary – and it is argued here that it should be a very last resort process rather than what has typically in the past been a process that has occurred without any real thought to social, environmental and economic sustainability – has to be factored into costs associated with OCR. It is possible the borrower may seek to keep these costs as low as possible without considering the living standards of the most severely affected peoples, which this Project needs to highlight.

Wherever possible the ADB seeks to minimize all forms of involuntary resettlement, especially physical displacement and those forms of economic displacement that result in a high number of severely affected people. There are not simply issues associated with income restoration and in some instances the need to develop alternative modes of income generation but also the sometimes severe disruption or severance of social networks. Both Hoi An and Dong Hoi are not large cities by Vietnamese standards and involuntary resettlement should be less severe than on for instance hydropower projects but it is not possible to compare these types of projects. Therefore it needs to be assumed that major forms of displacement can have negative consequences for all affected peoples unless the planning processes are well prepared, implemented and monitored.

The other issue is that this is an urban environment and climate change adaptation project and not a infrastructure development project in the context of simply identifying hard engineering solutions to existing urban environmental issues. Thus the Project needs to address those infrastructure projects that while seemingly of the hard engineering genre are necessary to mitigate the worst impacts of climate change. This means that issues such as improved transport connectivity are not the major rationale for a project of this nature even though this project does have a range of components that also enhance transport connectivity.

At the outset of this project there were upwards of 550 households that would have been physically displaced in Hoi An and 350 households in Dong Hoi had the project accepted the original design. The project was very much a urban infrastructure project and it only through protracted engagement with both implementing agencies was it possible to reach consensus on components that would meet the stated objectives of the original TA concept.

Approaches adopted by the TA included more reactively to suggest that had the original design been accepted both Dong Hoi and Hoi An would need to be Category A projects which would create prolonged passage through the ADB's compliance processes. It was also pointed out that as this is an OCR loan both Dong Hoi and Hoi An would have to bear all the costs of involuntary resettlement and that on economic and financial grounds high involuntary resettlement costs might prevent the project from being approved by both the GoV and ADB. This had a tremendous impact on the final design because involuntary resettlement impacts, as will be noted below, have been significantly reduced.

However, there was also attempt to be proactive in identifying possible involuntary resettlement impacts and suggest how design could improve the overall objective of the project but also reduce the severity of these impacts. During the numerous iterations the project has undergone since its inception in late February 2013 the project has been redesigned to such a large extent to now where prior to these iterations both Hoi An and Dong Hoi would need to have been classified as

Category A projects. The classification at the time of this FR to be agreed by the ADB is that Dong Hoi can now be classified as a Category C project because there are minimal involuntary resettlement impacts and Hoi An can be classified as a Category B project because while physical displacement impacts have been absolutely minimized there are economic displacement impacts that render a sufficient number of affected people severely affected through the near or complete loss of their productive assets (agriculture and aquaculture).

Income restoration measures identified in the two resettlement plans vary somewhat between Hoi An and Dong Hoi. The former provides more non-agricultural based income-generation opportunities than does Dong Hoi and being located in close proximity to Danang (Vietnam's third most important urban location for economic development) there are opportunities available in Hoi An that do not exist in Dong Hoi and likely never to exist. There are some similarities in both cities development trajectories as both cities are important tourist destinations but Hoi An has a range of comparative advantages that Dong Hoi even with the greatest will cannot emulate. But as the impacts in Dong Hoi are relatively minor the issue is not as complex as in Hoi An. In each of the resettlement plans attention has been paid to the need to analyze the economic activities of all APs to assess their needs, identify multiple income restoration programs through consultation and market and financial feasibility analysis, test training and income-generation programs with selected APs on a trial basis, develop a framework for institutional supervision and budget, and evaluate the program and provide additional assistance if required. The resettlement plans suggest a menu of options but these may well be adjusted and fine-tuned or even redirected during actual implementation of the two RPs. This project adopts a demand-driven approach to income restoration measures.

5.6 Due Diligence Activities

As this is an urban-based project there are a number of associated facilities in each of Hoi An and Dong Hoi that required due diligence. This process was not especially easy because it was sometimes difficult to find adequate documentation. Nevertheless, due diligence with a series of corrective actions was undertaken for these associated facilities .

5.6.1 Hoi An

Associated facilities in Hoi An cover the new water treatment plant: This project financed by NORAD is designed to upgrade and expand the Hoi An Water Supply system and due diligence focused exclusively on the actual WTP because to date this is the only facility that has generated relatively minor involuntary resettlement impacts (removal of graves). According to consultations undertaken with APs they are satisfied with how the project has handled this sensitive process. It can also be noted that APs were adequately consulted. The only outstanding issue is the likely impacts of temporary restricted land-use during the laying of transmission and distribution pipelines. It needs to be ensures that APs are adequately compensated for these temporary losses.

5.6.2 Dong Hoi

There are two associated facilities in Dong Hoi. They are (i) Nhat Le Bridge and (ii) Duch Ninh Wastewater Plant. Due diligence has been completed on the Duch Ninh Wastewater Plant but not Nhat Le Bridge because the TA Consultants are still waiting involuntary resettlement data from the Dong Hoi PC.

Nhat Le Bridge: The Nhat Le Bridge is a major component of the proposed development planning of the Bao Ninh Peninsula. Construction on this bridge began in August 2013 and according to data provided by the Dong Hoi City Land Fund Development Center physical and economic displacement affected 40 HH and economic displacement 131 HH (also includes those physically displaced). Physical displacement has yet to fully occur although some AH have been physically displaced already but whether full compensation and other allowances has been paid is the subject of further due diligence..

The Nhat Le 2 Bridge on the other hand was initially not fully compliant with acceptable GoV and ADB policies but across the river in Phu Hai Ward where the mainland approach to the bridge is located APs generally report they are satisfied with the payment of compensation and other allowances. However, on the Bao Ninh Peninsula many APs stated they were not satisfied with the initial compensation and other allowances payable or with the proposed resettlement site. But an agreement has been reached with Quang Binh PPC that all payments will be recalculated based not simply on updated 2014 provincial rates but also taking into account the 2013 Land Law. It has also been agreed that APs physically displaced will be exempt from all transaction costs and the resettlement sites will provide the necessary infrastructure facilities – permanently surfaced roads, domestic electricity and water connections, and urban waste collection – prior to the relocation of APs displaced as a result of the access to Nhat Le 2 Bridge.

Duch Ninh Wastewater Plant: The World Bank financed the construction of the Duc Ninh Wastewater Treatment Plant as part of the Coastal Cities Environmental Sanitation Project in Duc Ninh Commune and a RP was prepared in 2006 to ensure that 155 AH who lost partial structures and some agricultural land were adequately compensated

There are no suggested corrective actions for the Dong Hoi Urban Wastewater Treatment Plant because the World Bank, which has financed this facility, ensured that involuntary resettlement impacts were subject to safeguard provisions that are basically similar to those of the ADB and all monitoring reports indicate that implementation of the RP has been classified as satisfactory. WB satisfaction with the continuing implementation of the RP for this facility can be accessed on the WB website for Vietnam. The most recent inspection mission in April 2014 reiterated WB satisfaction with this facility

5.7 Resettlement Impacts

The following sections summarise the involuntary resettlement impacts in both Hoi An and Dong Hoi and are based on the IOL and RCS undertaken by the TA Consultants during September and October 2013 and follow up field work in April 2014.

5.7.1 Hoi An

The following table summarizes the numbers of affected households (including total number of affected persons disaggregated by gender, poverty and other forms of vulnerability) in Hoi An City..

Table 16: Affected Persons in the Four Hoi An Components

Component	Total AH	Female Headed	Male Headed	Total AP	Severely AH	Severely AFFH	Total SAP
Cua Dai Access Road	325	66	259	1,318	82	47	348
Co Co River New Urban Development	167	34	133	732	148	30	648
Lai Nghi Reservoir Improvement and Intake	25	07	18	118	21	07	99
Phap Bao Lake Improvement	11	03	08	37	11	03	37
TOTAL	528	110	418	2,205	262	87	1,132

Source: TA IOL and SES, September 2013

There are 528 affected households (AH). Female-headed Households constitute 20.8% of these AH. The total number of affected people (AP) is 2,205. Female APs constitute 50.2% of these AP. There are 262 severely affected households (SAH). Female-headed AH constitute 33.2% of these SAH. The total number of severely affected persons (SAP) is 1,132. Female SAPs constitute 32.6% of these SAH. The SAH currently have access to 114.6 hectares (1,146,000m²) of productive land but the Project will acquire an estimated 50.4 hectares (504,000 m²) of this land or 44% of this land. The other 266 AH (73 AP with females numbering 481 AP) of whom 24 AH (102 AP) headed by women that will experience a range of impacts of a relatively minor nature, which will have negligible impacts such as partial loss of structures, agricultural cropping land and planted trees, on their livelihoods.

Temporary impacts on land acquisition shall be identified during RP implementation. However, for persons affected by temporary impacts, especially the owners/operators of small businesses they will if necessary be compensated during the period of temporary disruption in this RP.

5.7.2 Dong Hoi

There is no physical displacement associated with any of the components, except for Road N°36. This new road planned for the Bao Ninh Peninsula is aimed at improving the connectivity between Bao Ninh Peninsula and Dong Hoi City which is intersected by the Nhat Le River, connectivity on the Bao Ninh Peninsula itself and also serves as an alternative evacuation route in the event of extreme weather events (notably typhoons); to avoid widening existing roads that would result in a large amount of physical displacement, a new 36 meter wide road is proposed. This road known as Road No. 36 will run for 5.8 kilometers and traverse five villages. However, the proposed road requires the exhumation, relocation and reburial of an estimated 1,100 individual graves out of an estimated total of 2,100 individual graves. Some affected graves contain as many as 60 individual graves of deceased family members while some graves contain the remains of only one deceased family member. This impact might be further reduced as a result of detailed design but as a precautionary principle the current estimate is accepted as the upper impact level.

While the removal of graves is a sensitive issue everywhere in Vietnam the minimal acceptable conditions for most people is that they are able to remove their relative's graves with a degree of dignity and conduct any necessary spiritual and religious rituals that are culturally acceptable. Graves are visited at least twice during the year: during the TET festival and when the annual sweeping of the graves takes place. Therefore people do not wish to have graves located at a distance they cannot undertake such activities. This is not an issue on Bao Ninh because the cemetery is within two kilometers of the original grave sites. According to consultations that were undertaken with many AH by theta there is broad agreement with the removal of graves. After the new cemetery became operational in 2007 local people were not permitted by the authorities to bury their dead outside this cemetery.

5.8 Resettlement Cost Estimates

5.8.1 Hoi An

5.8.2 A total of VND 281,538,340,327 or US\$ 13,535,497.14 is the estimated cost for implementation of this RP that includes payment of compensation and other allowances, costs associated with relocation site preparation and infrastructure provision, implementation and monitoring and contingencies (this includes the VND 149,606,027,451 or US\$ 7,192,597 that has/will be expended on the Cua Dai Access Road Component. Quang Nam PPC and Quang Nam Water Supply and Drainage Company will ensure the timely provision of funds and will meet any unforeseen obligations in excess of the resettlement budget in order to meet the social safeguards objectives of the Project.

5.8.3 Dong Hoi

During September 2013 the TA Consultants undertook the IOL and SES for both components. Based upon this and further field work conducted in April 2014 an estimate for the implementation

of the RP has been developed. A total of VND 34,753,600,000 (US\$1,670,846) is the estimated cost. Quang Binh Provincial People's Committee (PPC) and Dong Hoi URENCO will ensure the timely provision of funds and will meet any unforeseen obligations in excess of the resettlement budget in order to meet the social safeguards objectives of the Project..

5.8.4 RP Implementation Arrangements

In both Hoi An and Dong Hoi the Center for Land Fund Development is responsible for the day-to-day implementation of the resettlement plans and the PMUs in Hoi An and in Dong Hoi for the payment of compensation and other allowances. Internal monitoring of the resettlement plans will also be undertaken by the PMUs and external monitoring by a consultant entity. The EA for both cities is the People's Provincial Committee of Hoi An and Quang Binh respectively; the IA in Hoi An will be the Quang Nam Water Supply and Drainage Company based in Tam Ky, the provincial capital of Quang Nam and in Dong Hoi the IA will be Quang Binh URENCO based in Dong Hoi City.

6 Economic Analysis

This economic analysis aims to assess the economic viability of the project through standard cost benefit analyses. The analysis was undertaken separately for each of the 3 outputs/sub-outputs specified for the feasibility study reports: (i) Dong Hoi Urban Environment and Climate Change Adaptation Subproject, (ii) Hoi An Water Resources Subproject; and (iii) Hoi An Climate Change Adaptation Subproject. The Dong Hoi subproject presents the results for Output 1 of the project, and the two Hoi An subprojects are aggregated to provide the results for Output 2, Hoi An Urban Environment and Climate Change Adaptation. Finally the two outputs are combined and the overall project economic analysis accomplished with the cost of Project Management and Climate Change incorporated. This chapter summarizes the results for the two outputs and the overall project. More detailed information for the individual subprojects is presented in the feasibility study reports.

6.1 Demand Analysis

6.1.1 Dong Hoi.

According to Dong Hoi statistical year book, 2011, Dong Hoi City had a population of 112,865 people in 31,384 households. The natural growth rate was 1.17% in 2010, of which the birth rate was 1.64% and the death was 0.47% and it was 1.20% in 2011, 1.74% birth rate 0.54% death rate. In the 5 years from 2007 to 2011 the average population growth rate of the city was 1.05% and the natural growth rate was 1.19%. On this basis the population would reach 124,033 in 2020 and 130,708 in 2025, assuming the city does not extend its urban area beyond the current boundaries. According to the Master Plan for expanding Dong Hoi city to 2025 and vision to 2035, the population would reach 250,000 by 2025. Dong Hoi is the center of administration and economic activities of Quang Binh Province and is also considered as a tourist attraction. Gross domestic product (GDP) of the city accounts for about 50% of total GDP of Quang Binh Province--in 2011, the GDP of Dong Hoi city was VND1,802 billion compared to the GDP of Quang Binh Province VND3,997 billion. While tourism has been growing at a strong rate (17% overall and 10% per year for international visitors), it has been from a small base and the length of stay only slightly over 1 day. Tourism currently provides only a small contribution to overall GDP and should not be considered as a driving force for future economic growth.

The Master Plan provides for future development of Dong Hoi in several major directions: (i) infilling and expansion northwards towards the airport and north west from the current urban area, together with an industrial area; (ii) a new southern development area between the Nhat Le and Le Ky rivers; and (iii) the Bao Ninh peninsular between the Nhat Le river and the sea. Apart from reasons of resource efficiency, the immediate areas around the second bridge over the Nhat Le river are preferred for development in the short term as completion of this bridge by the end of 2013 will encourage development in this area. The government also intend to continue infrastructure development in Bao Ninh in the immediate future.

The predominant sanitation system used in Dong Hoi is for grey water to be discharged to the nearest drain or roadside ditch and black water to be discharged to septic tank and then to adjacent drains or ditches. In the inner city, most households have toilet with septic tanks of which 40-50%. Wastewater from businesses, restaurants and hotels is treated in septic tanks before discharging into the nearest drain or roadside ditch. The ongoing Coastal Cities Environmental Sanitation Project (CCESP) funded by the WB aims at improving the drainage and sewerage systems. In Dong Hoi city, a combined system has been developed in the core city, with a mixture of separate systems and combined system in the remaining areas. However, several aspects of CCESP have not been completed and investment is needed in these to bring the plant up to 100% operating capacity.

6.1.2 Hoi An.

Changing weather patterns most notably the changing pattern of wet and dry seasons will have impacts on the availability of water from existing resources. While future projections are not clear in this respect, existing observations in the central coastal region suggest that wet periods are

becoming wetter and dry periods dryer, thereby exacerbating the impact of both floods and droughts. While sea levels have been rising in the coastal regions, thereby increasing the risk of salinity, recent changes have been mostly ascribed to changes in water use, particularly increased use and competition for scarce water resources particularly by agriculture and hydropower. A number of potential directions can be advocated to increase resilience of urban water supply systems, in particular (i) securing water resources through conjunctive use schemes; (ii) sustaining low flows via scheduling reservoir releases; (iii) reducing customer demand through tariffs and improved household appliances; (iv) regulation of commercial/industrial users and assistance to large customers; (v) control of groundwater use; and (vi) adapting technical standards

The revised Master Plan for Hoi An, which is currently being discussed within government, projects the population to reach 111,300 in 2020 and 132,500 in 2030, of which 87,600 and 104,900 would be urban population. These projections are rather ambitious, but given the relatively small population numbers involved such growth could be achieved with appropriate activities to generate employment opportunities. The economy of Hoi An is dominated by the trade and service sector, accounting for over 60% of GDP in 2011. Annual GDP growth was 11.42% between 2007 and 2011 fuelled primarily by the tertiary (tourism) sector, which grew at almost 15% per year. Tourism is expected to continue to grow strongly.

6.2 Economic Rationale

Dong Hoi and Hoi An both represent rapidly developing mid-sized cities in Viet Nam, albeit at different stages of development. Both currently focus on tourism as a main driver of development although Hoi An has currently progressed much further along this path. To promote the planned expansion in tourism both cities will need to ensure that existing urban infrastructure is completed in a sustainable manner, in particular the wastewater collection and treatment system in Dong Hoi and the water supply system in Hoi An. In addition there is a need to develop new urban areas, Bao Ninh in Dong Hoi and Co Co urban area in Hoi An, that will support the needs of increasing tourism both directly and indirectly. Hoi An also needs to address the issue of flood management in many areas of the city and particularly with respect to Phap Bao lake and Provincial Road 608. With increasing attention to expected climate changes it is critical that these interventions should be implemented with careful attention to climate change adaptation.

The Dong Hoi investments will assist the city both in obtaining the envisaged benefits from the substantial investments that have already been made in wastewater collection and treatment infrastructure, and in developing urban infrastructure in Bao Ninh to support development of the tourism industry. Without the support of the project, and particularly the grant-aided hydrodynamic study and dune restoration, it is unlikely that Bao Ninh will be developed in a sustainable way. With project support, Bao Ninh urban area is expected to be an example of climate change resilient urban development in a coastal area, that can be a model for replication elsewhere.

In Hoi An, as the city's resident and tourist population continues to expand and living standards increase, the demand for domestic and industrial water is expected to increase. If demand cannot be satisfied, the rate of economic growth will decline with negative impacts particularly on tourism. Water availability is also affected by climate change, which has potential to increase salinity of raw water sources, and the current high rates of non-revenue water. The project will implement a well-developed and integrated approach to improving water availability through upgrading of existing facilities, in particular the Lai Nghi reservoir, and reducing the wastage by reducing water delivery losses. The project will also address the issues of flooding and sustainable development through a series of interventions which take account of climate change adaptation. In addition to the conventional approaches of raising road levels to reduce flood impact, the subproject in the Co Co urban development area will address flood management by such actions as ensuring zoning of areas is done such that valuable infrastructure is not constructed in the vicinity of the river, and construction takes into account the need to limit run-off and manage drainage requirements. This output involves several climate change adaptation measures and is expected to produce an outcome that can be used as a demonstration for other cities in Viet Nam.

ADB support for the project is critical not only due to the financial support it can bring to the cities, but also because of the wide range of technical assistance proposed to be provided through

associated grants and the technical capacity that will be included within the loan. The project is expected to strengthen the capacity of both cities to address climate change adaptation issues as the further develop and to provide examples for other coastal cities.

6.3 Least Cost Analysis

To evaluate the cost effectiveness of project options least cost economic analysis was been undertaken, in which the each option was compared on the basis of its Net Present Value (NPV). Comparisons have been carried out on the of (i) estimates of capital and operating costs for each option over 30 years taking into account the estimated increase in load up to full load in 2040; and (ii) costs common to all schemes, covering such items as distribution systems, house connections, design, supervision and contingencies were excluded.

Cost evaluation of all technical solutions is the first step of the assessment. Project costs are divided into two categories:

- **Capital costs (CAPEX):** Capital costs refer to all costs concerning the building of each water system. The word "system" refers to all elements which must be assembled to reach the goal: collect the wastewater, treat the water and discharge the effluent to the river without negative impact on the environment. Capital costs are the costs spent at the beginning of a project. They include detailed design, civil works, equipment and supervision of works. Such costs are funded by self-financing and borrowing.
- **Operating costs:** Operating costs include all costs incurred to run the system. The wages of the employees, the chemicals used in the process, the cost of electricity and overheads belong to the operating costs. They are in many case proportional to the activity (volume of water treated).

The analysis confirmed that dredging and improving the Lai Nghi reservoir would be significantly less expensive than extending the existing intake to upstream on the Thu Bon River. This is essentially due to significant savings in operational costs. Operational costs are also projected to be reduced compared to the near future situation.

6.4 Major Assumptions and Methodology

- The economic analysis has been conducted using Guidelines for the Economic Analysis of Projects , and Workbook on Economic Evaluation of Environmental Impacts of the Asian Development Bank (ADB). The major assumptions of the analysis are:
- economic analysis was carried out over 30 years including the 5-year implementation period;
- basic costs and prices are the same as those used in the financial analysis;
- financial costs and revenues are based on prevailing prices in mid-2013 and are expressed in constant 2013 terms;
- economic costs and benefits are valued in US dollars using the world price level numeraire in constant 2013 terms;
- local currency costs are converted to US dollars using an exchange rate of VND20,800 per US\$1;
- economic costs and benefits for non-tradable inputs and outputs were derived by excluding taxes and duties and then adjusting their values by a standard conversion factor (SCF) of 0.90 which is consistent with the SCF used in recent ADB projects for Viet Nam ;
- land acquisition costs, as a part of land acquisition and resettlement costs, were treated as non-tradable due to a lack of information to estimate economic opportunity costs;
- the proportion of costs for skilled and unskilled labor could not be separated from other non-tradable costs and a single conversion factor was therefore applied; and

- the economic opportunity cost of capital is assumed to be 12%.

6.5 Economic Costs and Benefits

6.5.1 Investment Costs

The output and overall project investment costs were derived from the agreed costs by output. Detailed costs by year were estimated using the Costabs program and are summarized in Table 17. The financial cost of the overall project is estimated at \$124.71 million, including physical contingencies but excluding price contingencies.

Table 17: Financial Cost by Output and for the Overall Project by Year

Item	Totals Including Physical Contingencies						
	2015	2016	2017	2018	2019	2020	Total
A. Dong Hoi Urban Environment and Climate Change Adaptation	1.85	7.76	10.22	10.12	3.53	0.04	33.51
B. Hoi An Urban Environment and Climate Change Adaptation	4.22	21.11	26.64	17.28	8.89	7.43	85.58
C. Project Management and Climate Change Support	3.01	0.76	0.57	0.54	0.49	0.26	5.62
Total PROJECT COSTS	9.08	29.64	37.43	27.94	12.91	7.72	124.71

Economic costs for the each output and the overall project were derived from the financial costs using the Costabs program. The economic cost of the overall project, base costs plus physical contingencies, is estimated at \$112.0 million (Table 18).

Table 18: Economic Cost by Output and for the Overall Project by Year

Item	Totals Including Physical Contingencies						
	2015	2016	2017	2018	2019	2020	Total
A. Dong Hoi Urban Environment and Climate Change Adaptation	1.67	6.89	9.03	8.98	3.13	0.03	29.70
B. Hoi An Urban Environment and Climate Change Adaptation	4.22	19.14	23.56	15.30	7.85	6.56	76.63
C. Project Management and Climate Change Support	2.75	0.68	0.51	0.48	0.43	0.23	5.08
Total PROJECT COSTS	8.64	26.71	33.10	24.73	11.40	6.82	111.41

6.5.2 Operation and Maintenance Costs

Operation and maintenance (O&M) were estimated based on the Circular 11/2012/TT-BXD dated on 25 December, 2012 relating to the allocation of funds to O&M by type of construction work. For wastewater investments the O&M cost is expected to be around 1% of the investment cost and this is considered to be reasonable for the type of incremental investments to be supported by the project. With respect to urban development, the circular indicates that industrial works should be allocated 0.6-0.1% of investment costs, civil construction works 0.08-0.1% and urban infrastructure works 0.18-0.25%. According to Decision 114/2010/ND-CP dated 6, December, 2010 on

maintenance of construction works, maintenance should be applied every 5 years after construction works are completed. For urban infrastructure works, the O&M costs are suggested to be a maximum of 0.25% of the investment cost every 5 years, equivalent to 0.05% annually. Such a small allocation to O&M is not expected to maintain infrastructure at the level required to achieve the expected project life. Consequently, 1% of the investment cost was used for the economic analysis.

O&M costs for the water resources interventions in Hoi An were determined as the difference between O&M costs without- and with-project as used in the least cost analysis. Similarly the net saving in investment costs were estimated based on the additional investment without- and with-project as estimated in the least cost analysis.

All financial costs for O&M and capital savings were converted to their economic values estimated using the same methodology as for the project investment costs

6.5.3 Benefits

The analysis was undertaken through comparison of the without- and with-project scenarios. In Dong Hoi., the without-project scenario envisages the existing land use to continue. With-project there will be (i) substantial savings as the main city communities connect to the wastewater system; and (ii) increased economic values in the Bao Ninh new urban area as measured through the economic benefits of improved urban roads, health and water supply. Additional benefits include improved urban drainage and improved flood protection through dune restoration but, due to lack of data, these had to be treated as non-quantifiable. The Bao Ninh Masterplan also suggests a substantial increase in the number of tourists, but these benefits were limited to health and water supply, which probably underestimates their magnitude. In Hoi An, the without-project scenario was defined as: (i) a poorly developed water supply system that will require additional capital investment in the near future and will continue to be relatively expensive to operate and maintain (ii) ongoing poor flood management resulting in substantial annual losses from flooding and slow development of new urban areas with poor adaptation to climate change. In the with-project scenario, reduced non-revenue water and dredging of Lai Nghi reservoir will increase water availability to consumers and reduce the need for incremental capital investment and O&M expenditure. Also improved flood management will also reduce losses. The economic value of the Co Co urban development area was estimated in terms of the economic value of the services provided, in particular water supply and wastewater treatment. The economic value of urban roads, solid waste collection, and flood management were treated as non-quantifiable due to the lack of data. Quantification of benefits is detailed in the feasibility study reports and summarized below.

Dong Hoi Urban Environment and Climate Change Adaptation. The benefits quantified for the main city water collection part of this output were (i) improved health, particularly reduced incidences of illnesses that result in lost working days; (ii) saved cost of cleaning septic tanks since these will no longer be required; and (iii) increased tourism due to the improved hygiene conditions. The quantifiable benefits identified for the development of the Bao Ninh urban area will come from (i) improved urban transportation and increased traffic in the urban area; (ii) improved health of families that move to the new residential area and tourists that visit it due to improved wastewater collection and treatment; and (iii) improved water supply for existing and new residents, as well as tourists. The non-quantifiable benefits, in particular from urban drainage and flood protection, are considered to be substantial.

Hoi An Urban Environment and Climate Change Adaptation. The benefits for the water resources part of this output were assessed based on the estimated willingness-to-pay (WTP) identified through the focus group meetings undertaken as part of the social study. These values were adjusted to reflect the difference in composition of the overall Hoi An community and the members of the focus groups, which concentrated on the poorer sectors of the community. Based on experience in similar situations and additional general discussions in the project area, it was assessed that the average incremental WTP for improved water supply by domestic and tourist consumers, the latter who particularly value high quality water was about 35% of the currently

rather low water price of VND5,500/m³. This value appears reasonably consistent with recent agreements with the World Bank for price increases. For industrial users the incremental WTP was estimated at a much lower amount of only 5%, which reflected their capacity to adjust to using groundwater if the price increases too much. The total WTP was estimated by year taking into account the expected increase in consumption due to increased population, increased tourism and industrial development. The financial WTP was converted to its economic equivalent by adjusting by the SCF, implying that WTP is a non-tradable commodity. The benefits for the flood management and urban development part were assessed as (i) reduced flooding due to improved flood management in Phap Bao Lake and implementation of non-structural flood management measures; (ii) reduced vehicle operating costs and time savings due to construction of the access road to Cua Dai Bridge; (iii) improved services, in particular water supply and wastewater collection and treatment, for Co Co urban development area; and (iv) improved flood protection and reduced travel costs, particularly during flood periods, from raising of a section of Provincial Road 608.

6.6 Economic Analysis Results

6.6.1 Dong Hoi Urban Environment and Climate Change Adaptation.

The results of the base economic analysis of the Dong Hoi urban environment and climate change adaptation output are shown in Table 19. The EIRR is estimated at 17.3% and the ENPV at \$11.7 million, indicating the component is economically viable. However, in interpreting this result consideration should be given to the additional investment in public infrastructure that will be required to ensure the attractiveness of this urban area as well as the extent of non-quantified benefits.

Table 19: Economic Evaluation of Dong Hoi Urban Environment and Climate Change Adaptation

(\$000s)

Year	Costs		Total Cost	Benefits		Total Benefits	Net Benefits
	Investment Costs	O&M Costs		Bao Ninh	Waste water		
2015	1,675	-	1,675	-	104	104	(1,570)
2016	6,892	8	6,900	-	178	178	(6,723)
2017	9,031	21	9,052	-	330	330	(8,722)
2018	8,946	36	8,982	1,057	489	1,546	(7,436)
2019	3,126	51	3,177	1,908	548	2,457	(720)
2020	34	302	335	2,813	561	3,373	3,038
2021		302	302	3,760	573	4,334	4,032
2022		302	302	5,355	587	5,942	5,641
2023		302	302	6,121	601	6,722	6,420
2024		302	302	6,297	616	6,913	6,611
2025		302	302	6,479	631	7,111	6,809
2026		302	302	6,667	642	7,309	7,007
2027		302	302	6,861	652	7,514	7,212
2028		302	302	7,062	663	7,725	7,424
2029		302	302	7,269	674	7,944	7,642
2030		302	302	7,483	686	8,169	7,868
2031		302	302	7,705	698	8,403	8,101
2032		302	302	7,933	710	8,643	8,342
2033		302	302	8,170	723	8,892	8,591
2034		302	302	8,414	736	9,150	8,848
2035		302	302	8,666	749	9,415	9,114
2036		302	302	8,905	763	9,668	9,366
2037		302	302	9,150	777	9,927	9,626
2038		302	302	9,403	792	10,195	9,893
2039		302	302	9,664	807	10,471	10,169
2040		302	302	9,932	822	10,755	10,453
2041		302	302	10,209	839	11,047	10,746
2042		302	302	10,494	855	11,349	11,047
2043		302	302	10,787	872	11,659	11,357
2044		302	302	11,089	889	11,979	11,677
ENPV (12%)	20,894	1,415	22,309	30,008	3,977	33,985	11,676
EIRR							17.3%

6.6.2 Hoi An Urban Environment and Climate Change Adaptation.

The results of the base economic analysis of the Hoi An urban environment and climate change adaptation output are shown in Table 20. The EIRR is estimated at 12.2% and the ENPV at \$1.01 million, indicating the component is marginally economically viable..

Table 20: Economic Evaluation of Hoi An Urban Environment and Climate Change Adaptation

(\$000s)

Year	Investment Costs			Recurrent Costs			Total Cost	Benefits			Net Benefits
	Lai Nghi	Urban Development	Total	Lai Nghi	Urban Development	Total		Lai Nghi	Urban Development	Total	
2015	462	4,180	4,642	(52)	-	(52)	4,590	342	-	342	(4,249)
2016	846	18,715	19,561	(71)	-	(71)	19,489	362	-	362	(19,128)
2017	2,509	21,052	23,561	(89)	-	(89)	23,471	383	-	383	(23,088)
2018	2,250	13,052	15,302	(107)	-	(107)	15,195	406	1,567	1,973	(13,222)
2019	1,290	6,556	7,846	(123)	570	447	8,293	431	5,883	6,314	(1,979)
2020	-	6,556	6,556	(138)	636	497	7,053	457	6,328	6,785	(268)
2021	-	-	-	(143)	701	558	558	480	6,815	7,295	6,737
2022	-	-	-	(148)	701	553	553	504	7,388	7,892	7,339
2023	-	-	-	(153)	701	548	548	530	8,025	8,555	8,008
2024	-	-	-	(158)	701	543	543	558	8,704	9,262	8,719
2025	(2,958)	-	(2,958)	(163)	701	538	(2,420)	588	9,446	10,034	12,454
2026	-	-	-	(163)	701	539	539	604	10,244	10,849	10,310
2027	-	-	-	(162)	701	539	539	622	11,141	11,763	11,224
2028	-	-	-	(161)	701	540	540	639	12,149	12,789	12,249
2029	-	-	-	(161)	701	540	540	658	13,283	13,941	13,401
2030	1,468	-	1,468	(204)	701	497	1,964	677	14,560	15,237	13,272
2031	-	-	-	(323)	701	378	378	692	14,895	15,587	15,209
2032	-	-	-	(324)	701	377	377	707	15,240	15,947	15,570
2033	-	-	-	(324)	701	377	377	722	15,595	16,317	15,941
2034	-	-	-	(325)	701	376	376	738	15,959	16,698	16,322
2035	(463)	-	(463)	(326)	701	376	(88)	755	16,334	17,089	17,177
2036	-	-	-	(327)	701	374	374	772	16,719	17,490	17,116
2037	-	-	-	(328)	701	373	373	789	17,114	17,903	17,530
2038	-	-	-	(330)	701	371	371	806	17,521	18,327	17,956
2039	-	-	-	(331)	701	370	370	825	17,939	18,763	18,393
2040	-	-	-	(332)	701	369	369	843	18,368	19,212	18,843
2041	-	-	-	(332)	701	369	369	862	18,810	19,672	19,304
2042	-	-	-	(332)	701	369	369	882	19,264	20,146	19,777
2043	-	-	-	(332)	701	369	369	901	19,731	20,633	20,264
2044	-	-	-	(332)	701	369	369	922	20,212	21,134	20,765
ENPV (12%)	4,381	48,972	53,353	-1,181	3,410	2,230	55,583	4,053	52,537	56,590	1,007
EIRR											12.2%

6.6.3 Overall Project.

Combining the two outputs and including the economic costs of project management and climate change support provides an assessment of the economic viability of the overall project (Table 21). The EIRR of the overall project is estimated at 13.1% and the ENPV at \$8.78 million, confirming that the economic viability of the overall project

Table 21: Economic Evaluation of the Overall Project

(\$000s)

Year	Invest- ment Costs	Recurrent Costs			Total Cost	Benefits			Net Benefits
		Hoi An	Dong Hoi	Total		Hoi An	Dong Hoi	Total	
2015	9,062	(52)	-	(52)	9,010	342	104	446	(8,564)
2016	27,133	(71)	8	(63)	27,069	362	178	540	(26,530)
2017	33,098	(89)	21	(68)	33,029	383	330	713	(32,316)
2018	24,731	(107)	36	(71)	24,661	1,973	1,546	3,519	(21,142)
2019	11,403	447	51	498	11,901	6,314	2,457	8,771	(3,131)
2020	6,589	497	302	799	7,388	6,785	3,373	10,158	2,770
2021	-	558	302	859	859	7,295	4,334	11,629	10,770
2022	-	553	302	854	854	7,892	5,942	13,834	12,980
2023	-	548	302	849	849	8,555	6,722	15,277	14,428
2024	-	543	302	844	844	9,262	6,913	16,175	15,330
2025	(2,958)	538	302	840	(2,118)	10,034	7,111	17,144	19,263
2026	-	539	302	840	840	10,849	7,309	18,158	17,317
2027	-	539	302	841	841	11,763	7,514	19,276	18,436
2028	-	540	302	841	841	12,789	7,725	20,514	19,673
2029	-	540	302	842	842	13,941	7,944	21,885	21,043
2030	1,468	497	302	798	2,266	15,237	8,169	23,406	21,140
2031	-	378	302	680	680	15,587	8,403	23,990	23,310
2032	-	377	302	679	679	15,947	8,643	24,591	23,912
2033	-	377	302	678	678	16,317	8,892	25,210	24,531
2034	-	376	302	678	678	16,698	9,150	25,848	25,170
2035	(463)	376	302	677	214	17,089	9,415	26,504	26,291
2036	-	374	302	676	676	17,490	9,668	27,158	26,482
2037	-	373	302	674	674	17,903	9,927	27,830	27,156
2038	-	371	302	673	673	18,327	10,195	28,522	27,849
2039	-	370	302	672	672	18,763	10,471	29,234	28,562
2040	-	369	302	670	670	19,212	10,755	29,966	29,296
2041	-	369	302	670	670	19,672	11,047	30,719	30,049
2042	-	369	302	670	670	20,146	11,349	31,494	30,824
2043	-	369	302	670	670	20,633	11,659	32,292	31,622
2044	-	369	302	670	670	21,134	11,979	33,112	32,442
ENPV (12%)	78,152	2,230	1,415	3,645	81,796	56,590	33,985	90,575	8,779
EIRR									13.1%

6.7 Sensitivity Analysis

Sensitivity analyses were conducted for each of the components as well as the overall subproject, including (i) a 10% cost increase; (ii) a 10% benefit decrease; (iii) a 10% cost increase combined with a 10% benefit decrease; (iv) a 1-year lag in benefits, and (v) a 50% increase in O&M costs. Switching values and sensitivity indexes were estimated for the cost increase and benefit decrease analyses. The results of the sensitivity analyses for each of the outputs as well as the overall project are summarized in Table 22. They indicate that the project would remain economically viable with a 10% cost increase (12.1%) but marginally non-viable with a 10% benefit decrease (12.0% but with an ENPV of negative \$0.28 million). The switching values for these two scenarios are 10.7% and 9.7% respectively. A 10% cost increase combined with a 10% benefit decrease would result in EIRR decreasing from 13.1% to 11.0% and the ENPV from \$8.78 million to negative

\$8.46 million. A 1-year lag in benefits would reduce the EIRR to 11.8% and the ENPV to negative \$1.91 million. A 50% increase in O&M costs would only reduce the EIRR to 12.9%, confirming the project is not sensitive to increased O&M costs. Given the extent of non-quantifiable benefits, the results of these sensitivity tests are considered acceptable

Table 22: Summary of Economic Indicators and Sensitivity Analysis

Scenario	EIRR (%)	ENPV (\$million)	Switching Value (%)	Sensitivity Index
Dong Hoi Urban Environment and Climate Change Adaptation				
Base case	17.3	11.68		
10% cost increase	16.0	9.45	52.3	1.9
10% benefit decrease	15.8	8.28	34.4	2.9
10% cost increase + 10% benefit decrease	14.6	6.05		
1-year benefit lag	15.3	7.68		
50% increase in O&M Cost	17.0	10.97		
Hoi An Urban Environment and Climate Change Adaptation				
Base case	12.2	1.01		
10% cost increase	11.0	(4.55)	1.8	55
10% benefit decrease	10.9	(4.65)	1.8	56
10% cost increase + 10% benefit decrease	10.0	(10.21)		
1-year benefit lag	10.8	(5.69)		
50% increase in O&M Cost	11.8	(0.11)		
Overall Project				
Base case	13.1	8.78		
10% cost increase	12.1	0.60	10.7	9.3
10% benefit decrease	12.0	(0.28)	9.7	10.3
10% cost increase + 10% benefit decrease	11.0	(8.46)		
1-year benefit lag	11.8	(1.91)		
50% increase in Operation and Maintenance Cost	12.9	6.96		

EIRR = Economic Internal Rate of Return; ENPV = Economic Net Present Value O&M = operation and maintenance
Values in parentheses are negative

6.8 Benefit Distribution and Poverty Impact Analysis

Given the relatively low reported incidence of poverty in the project area, both in Dong Hoi and Hoi An, it was not considered appropriate to estimate a formal poverty impact ratio. However, the project will clearly have significant benefits for the poorer sectors of the community in both cities since these will benefit the most from improved sanitation, water availability and flood management, as well as cost savings associated with the shift from use of septic tanks since it is

the poorer communities that live in areas that lack these facilities. They are also expected to benefit from job creation, particularly during construction of the new urban areas and in the increased employment following establishment of commercial enterprises in these areas although there is not sufficient data available to make a quantitative estimate.

7 Financial Analysis

7.1 Introduction

Project finance includes the following main areas of activity:

- Project financial management
- Reviewing the financial feasibility of individual projects or sub-components to be implemented;
- Reviewing the financial capacity of any project proponent (EA, IA and/or proposer) to provide counterpart funds and repay loans;
- Linked to the above, utility finance analysis and tariff analysis

7.2 Project Financial Management Assessment

Effective financial management is a critical factor to ensure the benefits of a well designed and implemented project are sustainable. The EA / IAs financial management arrangements should be capable of and adequate for recording all transactions and balances, supporting the preparation of regular and reliable financial statements, safeguarding the entity's assets, and are subject to audit (of substance and form acceptable to ADB).

Financial management assessment (FMA) has been undertaken to determine the institutional capacity of each IA, funds flow arrangements, staffing, accounting policies and procedures, internal and external auditing arrangements, reporting and monitoring aspects, and information system. The EAs are the provinces of Quang Binh (QB) and Quang Nam (QN). Quang Binh IA will be URENCO. Quang Nam IA will be the Provincial WSDC and its Hoi An WSC Division. Further work might be required to investigate how funds will be passed down, particularly to non-revenue earning components. However, since operating agencies all fall under the PPC there are unlikely to be problems.

A Financial Management Assessment Questionnaire (FMAQ), initially proposed and prepared by the ADB, was slightly modified and translated into Vietnamese, where appropriate, to adapt to the specific conditions of the subprojects and formed the basis for the assessment. The completed questionnaires have been previously included in the Interim report. Issues or risks associated with each entity's financial management systems were identified and appropriate risk mitigation measures were recommended for adoption as part of the Project design.

The results of the FMAQ were analyzed with particular focus on the accounting and auditing procedures and staff expertise. In terms of accounting and auditing procedures, the existing financial information system (i.e., accounting, reporting, and internal control system) is complete and applicable for domestic construction entities. In terms of staff expertise, the PMUs have experience in infrastructure construction financed by both domestic and international funds, but have not implemented an ADB project (although the EAs have). Training on ADB procedures and advanced financial management will be necessary to ensure success of implementation of the proposed Project.

The project will operate in two provinces of Vietnam. Each will be based in a single city but will cover a number of sectors in each. In each province it will be led by a senior and experienced agency, which has experience with other MDBs. That agency will be led by a PMU/PIU. They will be backed by a line PPC financial department. Historical data has been made available as indicated in the below tables. Profit and Loss relatively easily; but data on past loans less so. Depreciation is included but not given separately in the P&L and so has to be added back separately to give cash flow. Both agencies use Vietnam Accounting Standards, an Accrual based system. Agency staff are well versed in the Standards. The local Department of Finance will supervise accounts and report to the PPC, which in turn reports to the PC. Separate internal and external auditors will also be used. In Dong Hoi an on-going World Bank sanitation project is funded through the local financial department and funds flow arrangements are satisfactory. There have been no funds flow, invoicing or auditing problems. Physical as well as financial targets are

budgeted. A separate bank (to be defined) will be used for the Special Account. Counterpart funds will come directly from the PPC.

7.3 Some rules regarding fiscal analysis of the PPCs

Discussions conducted with the MoF ²⁸ showed that there is no specific grid issued by the Ministry regarding fiscal analysis of the PPCs. Existing norms and standards are mainly linked with the allocation rules of intergovernmental transfers and with the limitation of the indebtedness of the local state budget:

- Target transfers and balancing aids are calculated based on the approved amount of operating and capital investment expenditures less the proceeds of local taxes;
- Cumulative debt outstanding cannot exceed 30% of the yearly capital investment expenditure, which is low and reflects the lack of regular credit mechanism at the local level; this rule has been enacted by the State Budget law of 2002; it has been amended recently by the State Treasury law 162/2012/TT-BTC of October 3, 2012 that mentions that the ceiling has to be applied to the Local state Budget as a whole, including Districts budget; so the PPC becomes dependent on the CPCs policies and the implementation of the provision obliges to conduct fiscal analysis not only on the PPC budget but also on the CPC budget;
- Land sales proceeds recorded within the PPC's budget can only be used to finance construction or capital investment expenditures, including loan repayment (principal and interest);
- From 30% to 50% of the land sales proceeds have to be allocated to the Land Development Fund (LDF) itself only dedicated towards the financing of the resettlement and land acquisition costs involved by the UDAs conducted by PPCs and CPCs.

In this context, it is recommended to adopt specific format to perform fiscal analysis that will assess the capacity of the local State budget to pay back the loan without additional balancing transfer. To refer to international standards regarding credit worthiness assessment, it is recommended to use the following items:

- Operating surplus: current revenues less operating expenditures (included operating transfers to Districts, SOEs and other PPC's satellites) as a first indicator of the capacity of the PPC to balance properly operating budget and to repay the loan with regular revenues; it is assumed the operating surplus should exceed 30% of the current revenue to cover debt service and self-finance part of the construction budget;
- Net margin: operating surplus less debt service (principal and interest) to measure the need for exceptional revenue such as additional balance transfers or land sales proceeds to pay back the loans; usually it is considered the net margin must represent about 20% of the capital investment expenditure excluded debt repayment (debt service);
- Overall closing balance: total revenues less total expenditures to measure the capacity of the PPC to expend the money it has (and more especially received from the complex intergovernmental transfer set up in Vietnam). Usually an OCB that is exceeding 15% of the current revenues (more than 2 months cash) is considered as a low level of performance in terms of effectiveness and efficiency.

²⁸

More especially meeting held on October 15, 2013 with officials from the General Department of State Budget (Central and Provincial divisions) and from the General Department for Public Debt and External finance.



The three items calculation need to classify revenue and expenditure in two sections: (i) Operating budget and (ii) Capital investment Budget and to separate debt service from the two main sections. Mandatory transfers to sub-level (Districts) have to be identified in reduction of the income for use. Possible budget carry-forward exercise, existing arrears and amount of revenue to be recovered have also to be underlined to confirm the credibility of the budget. On this basis, it is recommended to conduct fiscal analysis in three steps:

- Historical analysis (5 years period): based on planned and actual data as recent as possible (including estimates of the last exercise);
- Projections: at least on ten years to capture capital repayment (beyond the grace period); projections need to make estimates and assumptions which will affect the three items mentioned above; in particular it is crucial to account the amortization of the existing debt outstanding and to add the new one;
- Ratios: identify about ten ratios to illustrate the financial performance of the PPC and the conclusion of the fiscal analysis with the decision to on-lend or not. In this context, selected ratios are mainly budgetary and financial performance ratios. But it has to be assume other categories of indicators as illustrative of the risk might be also accounted (such as the economic performance of the province, the quality of services delivered, etc.

²⁹⁾

7.4 Quang Nam Province Financing Ability

Loan repayment capacity of EAs or IAs is normally estimated more globally from an assessment of costs and debt payments against net revenues. Data for 2010 and 2011 given in Table 8 of the Inception Report showed that both Quang Binh and Quang Nam were heavily dependent on central government (CGV) subsidies. The historic analysis below shows that that was not new. Forecast revenues by Quang Binh might show a change but have not yet been provided. Increased revenues with increased revenue finding capabilities must be offset against increased operational costs.

²⁹

For example, Vietnam is experiencing PEFA methodology (Public Expenditure and Financial Accountability) and Provincial competitiveness index measurement. Those tools could be useful to monitor future on-lending policy.

For the Quang Nam Province's subsidiary loan, because the revenue-earning components are implemented by the QNWSDC, there is only a need for a fiscal analysis of the PPC budget. However, this fiscal analysis will have to integrate the guarantee to provide by the PPC to the WSDC for the two revenue-earning components.

Table 23: Type of Fiscal Analysis to be undertaken for Quang Binh Components

Borrower	Non-Revenue earning components (access road to Cua Dai Bridge + Road 608 + Flood management infrastructure)
Quang NAM PPC	Fiscal analysis (PPC budget) with incorporation of the debt service generated by the total loan + guarantee offered to the WSDC.

For the Quang Nam Water Supply and Drainage Company's subsidiary loan: because the two revenue-earning sub-components are implemented by "branches" with no financial autonomy (Hoi An water supply division for the reservoir and a simple project Unit for the CoCo UDA), it might be important to conduct, as in Quang Binh, three different analyses:

- An incremental financial analysis of the Coco River UDA with implication on the capacity of the land sales proceeds to cover the repayment of the loan;
- A corporate based analysis of the water supply component based on Hoi An Division financial statements with implication on WS tariff policy (full cost recovery);
- A corporate-based financial analysis of the company as a whole to check if there is no specific constraint due to an overall adverse financial situation.

Borrower	CoCo Urban Development Area	Lai Nghi Reservoir (water supply)	Corporate based financial analysis
Quang NAM WSDC	Financial statement of the project (incremental) with cashflow calculation based on the cost recovery of the loan (Principal and interest) through the land sales proceeds	WSDC (Hoi An WSD Division) corporate based financial analysis (objective: full cost recovery) with impact on tariff policy	(WSDC as a whole) with incorporation of the debt service generated by the total loan, to check if there is no specific constraint due to the overall situation of the company.

7.4.1 The Co Co UDA sub-component

The Co Co UDA project is a real estate project implemented by the Quang nam Water Supply and Drainage Company. This project should contribute to increase the housing supply within the town and to reduce the prices on the market. The area is 140 ha along the Co Co river, close to the old city. The content of the project is a mix of residential, civic facilities, trade and services and also tourism activities, developed with the concern to respect the environment and to contribute to the economic growth of the town. The number of residential lots is roughly estimated up to 7.500 with a total possible population living in the area up to 30.000. The access road to the Cua Dai Bridge crosses the land development area and contributes to increase the value of the land. This access road is particularly crucial: its construction will protect the area against flood and will provide to the Hoi An population an alternative route during the flooding. The project will consist in developing basic infrastructure for a lump sum up to \$21.2 million (base costs) funded with an OCR loan of the same amount. This loan is on-lent to the WSDC through VDB.

Key assumptions of the project consist of

- Land use rights: the entire land (140 ha) will be transferred to the QNWSDC for development by the PPC. In accordance with the existing regulation, the average price is 200.000 VND/m² to be applied only on the portion of the land that will be transferable (about 56 ha if we refer to the layout provided by the company). The land use rights will be

paid gradually to the PPC, in line with the number of plots sold, to reduce the liquidity treasury risk.

- Land compensation: most of the land involved in the project is agricultural land and needs to be compensated. The total cost for land acquisition is estimated USD1.118 million (base costs) and will have to be paid before the beginning of the works. One option is to charge these costs to the financial statement of the project implemented by the WSDC.
- Land use plan: the land use plan allocates less than 50% of the total area to transferable land of which two third to residential plots and one third to trade and services. The size of the residential plots is 60 to 70 m2 as in most of the social mixed residential areas. More than 50 % of the area is allocated to roads, parking and civic facilities. 12% are reserved to tourism and recreational facilities located along the river and the access road to Cua Dai bridge.
- O&M of the area during and after the end of the works: the portion of land developed for infrastructure and civic facilities (about 60% of the area) will be on-lent for free to the CPC³⁰ and PPC that will be responsible for maintenance (roads, greens, street lighting, etc.); it is agreed the WSDC will have to maintain the area for ten to fifteen years, waiting the complete occupation of the site by the residents.
- Works: the WSDC will develop the land with basic infrastructure as mentioned above (roads, water and wastewater, drainage and flood protection, street lighting, etc.). It is not planned it will build housing or civic facilities that will stay under the responsibility of the buyers (housing) and of the public sector (civic facilities).
- Commercialization: residential land will be sold by plot with the possibility to buy several plots (up to five as a general rule). The price will be market-based. According to the WSDC, the current price (2013) is estimated around VND4 to 5 million/m2 for a plot located on a secondary road and double for a plot along a main road. Since the size of the plots is 60 to 70 m2, the price of the plot is between VND240 and 560 million (USD11.500 to 27.000).
- Plots for lease: the plots earmarked for tourism activities (mainly along the river) will be offered in full concession up to fifty years, with restrictions regarding constructions to build in site³¹. The concession price will be market-based and is estimated around 70% of the sale price (regularly reassessed) to be paid per year or in one time with a discount.
- Schedule and phasing: the WSDC expects to develop all the land in five years started in 2014 with three phases. They will have to be phased with the works of the access road to the Cua Dai Bridge under the responsibility of the PPC. The commercialization phasing should be about the same, but the construction of the houses and buildings would take at least between ten and fifteen years, as it is mainly a self-building process by the households and small enterprises.
- ADB loan: the loan proceeds are disbursed and paid back on the same basis than the ADB conditions to the State Government, plus the VDB management fee applied when the borrower is a utility company.
- Taxes: a 10% VAT has been applied to the land use right transfer from PPC to the WSDC to be paid by the company. Then a 22% profit tax has been applied to the overall closing balance of the project, to be paid only at the end of the project. This assumption is theoretical, since the profit tax being paid by the company on its overall profit before tax.

Based on the assumptions described above, the cash flow of the project is expected to be highly positive with a FIRR more than 12%. This result is mainly due to the leverage introduced by the

³⁰ The CPC will be responsible for greens, water feature (basin) and streets. PPC will be in charge of main roads and embankment along the river.

³¹ This point has to be discussed with the WSDC, regarding the environmental specifications attached to this area.

low land use price (administrative price) and to the term of the ADB loan. The sensitivity to the rate of commercialization is partly neutralized by the grace period and the maturity of the loan.

Table 24: Financial analysis of the Coco UDA project

Items	Number of plots	Plot area	Total area (in m2)	Number of units involved	%
1. Residential plots		70	151 311	2 162	35%
2. Plots for villas		60	206 929	3 449	
3. Other housing		60	123 810	2 064	
4. Trade and services		40	77 886	1 947	6%
5. Tourism activity (for lease)			171 341		12%
6- Plots for civic facilities			99 128		7%
Stadium			30 900		
Total			830 405		59%
Roads and parkings			532 654		38%
Water face			33 945		2%
Total général			1 397 004	9 621	100%
COS-Coefficient d'utilisation Sol					

Table 25: Costs & Phasing of Coco UDA

Costs and phasing

Charges items	Projections		2014	2015	2016	2017	2018	2019	2020+
	Amount	%							
Land acquisition	146 664	12%	48 115	36 956	36 956	24 637	0	0	0
Land acquisition (to the PPC)	111 987	9%	22 397	33 596	33 596	22 397			
Land compensation	23 478	2%	23 478						
Taxes and duties (10% VAT on land acq.)	11 199	1%	2 240	3 360	3 360	2 240			
Design - Control and supervision	64 839	5%	12 474	12 474	12 474	12 474			
Layout									
Engineering & supervision									
Others									
Off-site works	0	0%	0	0	0	0	0	0	0
Access roads									
Others									
In-site works	648 393	55%	124 740	124 740	124 740	124 740	11 907	12 502	125 024
Investment costs	453 600		113 400	113 400	113 400	113 400			
Maintenance costs of the area during 15 years	194 793		11 340	11 340	11 340	11 340	11 907	12 502	125 024
Operating costs	319 019	27%	9 266	27 074	27 074	27 074	22 808	22 808	211 984
Operating costs	42 995	4%	9 266	9 266	9 266	9 266	5 000	5 000	25 000
Interest of the loan	276 024	23%	0	17 808	17 808	17 808	17 808	17 808	186 984
Total	1 178 915	100%	194 596	201 244	201 244	188 926	34 715	35 310	337 008
Total excluding operating costs	859 896		185 329	174 170	174 170	161 851	11 907	12 502	125 024
% (cumulative)	100%	0%	17%	34%	51%	67%	70%	73%	101%
% (excluding operating costs)	100%	0%	22%	42%	62%	81%	82%	84%	98%

Table 26: Financing Plan
Financing Plan

Revenue Items	Projections		2014	2015	2016	2017	2018	2019	2020+
	Amount	%							
Land sales & leases									
Residential standing (along streets)	1 175 701	27%	144 615	212 102	349 968	320 804	70 577	77 635	0
Residential	1 643 306	38%	216 923	227 769	318 876	334 820	175 780	369 139	0
Trades and services	1 022 574	24%	0	178 203	343 041	323 439	177 891	0	0
Leases for tourism	504 286	12%	0	4 678	10 140	16 492	19 880	21 576	431 520
Total revenues	4 345 868	100%	361 538	622 751	1 022 025	995 555	444 128	468 350	431 520

Cash flow

	Projections		2014	2015	2016	2017	2018	2019	2020+
	Amount	%							
Capital investment project expenditures	1 178 915	73%	194 596	201 244	201 244	188 926	34 715	35 310	337 008
Repayment of the principal	445 200	27%	0	0	0	0	0	0	445 200
Total charges	1 624 115	73%	194 596	201 244	201 244	188 926	34 715	35 310	782 208
Cash flow			166 942	421 507	820 781	806 630	409 413	433 039	-350 687
Cumulative Cash flow	2 707 625		166 942	588 449	1 409 230	2 215 859	2 625 273	3 058 312	2 707 625
Profit tax (22 %)									595 677
Cumulative Cash flow after tax	2 111 947		166 942	588 449	1 409 230	2 215 859	2 625 273	3 058 312	2 111 947

7.4.2 Water Utility Financial Analysis

Financial analysis was undertaken for the investments proposed under the ADB loan. All investment costs incurred, or planned to be incurred, by the government up to the end of 2014 were treated as sunk costs. Hence the expected situation at the end 2014 was treated as the without-project scenario. Operating costs and benefits were measured in terms of the incremental values compared to the without-project scenario, after allocating between the loan and other proposed government-financed investments. The investment period for the project investments was planned as 5 years from 2015 to 2019 and the total project life, including the investment period, was assumed to be 30 years. Investment costs derived from the overall project investment plan and were in constant 2013 values. Operation and maintenance (O&M) costs were derived from Consultant's projections of future O&M costs, adjusted to constant 2013 values based on an annual deflator. Expected revenues were similarly obtained from QB WSDCs estimates of future tariffs adjusted to constant values, and allocated between the loan and other investments.

The WACC was estimated at 1.04% based on the ADB loan financing 89.3% of project costs. The financial internal rate of return (FIRR) was estimated at 12.3%, in excess of the WACC, and the financial net present value at a discount rate equal to the WACC was estimated at VND 235.4 billion, confirming the financial viability of investment in water supply. Sensitivity tests were conducted to assess the impact of (i) a 10% increase in investment costs; (ii) a 10% increase in O&M costs; (iii) a 10% increase in all costs; (iv) a 10% decrease in revenue; (v) a combined 10% cost increase and 10% revenue decrease. The resultant FIRRs were all higher than the WACC. The investment is concluded to be robust with respect to increased investment and operating costs when considered separately; but sensitive to an increase in overall costs together with a decrease in revenue.

Water tariffs are collected by the Hoi An division of QN WSDC. Current tariffs are summarised in Table 27. These tariffs comply with the previous World Bank loan covenants

Table 27: Current Water Supply Tariffs (2013) for Hoi An

Area	Domestic (VND/m ³)	Institution (VND/m ³)	Industry (VND/m ³)	Trade and Service (VND/m ³)
Tam Ky, Hoi An	5500	8000	8500	9500

Water tariff projections indicate that without a tariff increase QN PPC will need to subsidize the O&M and debt service costs at an increasing rate from 2014. To achieve cost recovery, average water tariffs are estimated to need to be increased to VND 9018/m³ in 2014 and VND11325/m³ in 2020, with domestic tariffs increasing to VND 5863/m³, and 7369/m³, respectively.

Affordability analysis was conducted to determine if the proposed water tariffs are affordable. The assumed increase in water and wastewater tariff to VND 5863/m³ from 2014, would result in estimated water bill in of about VND 73872/month for an average family, equivalent to about 2.7% of monthly household income. Since this value is below the international norm of 4%, they are considered to be affordable. For hotels, similar analysis shows for the medium (3 star) hotels that the water tariff would represent 1.0% of monthly revenues.

A further test was conducted through comparison of the proposed tariff increase with the estimated incremental willingness-to-pay (WTP) of VND 275/m³ for improved water supply services. The proposed increase in water tariffs between 2013 and 2020 represents in fact a decrease in tariffs in constant prices. For hotels an average incremental WTP of 712.5 VND/m³ was derived from the social surveys. The proposed increases were slightly higher than this value in the early years but within the increased WTP from 2018 onwards. While therefore the proposed tariff increase is considered to be within the range of the beneficiaries' WTP, there will be a need through IEC campaigns developed in the project to publicize the benefits of improved water supply.

7.4.3 Quang Nam PPC fiscal analysis

This Preliminary analysis has been carried out on the basis of the data provided by the MoF for the 2009 to 2013 period – see table below. These data refer specifically to PPC budget by difference with the Local State Budget at the provincial level that aggregates budget of the three levels of local entities (Province, Districts and Communes).

7.4.4 Fiscal situation 2009-2013

Table 28 below summarizes the financial situation of the Province as captured from the very last data provided by DoF in March 2014 and reviewed during the mission by the PPC and the MoF.

The amounts are in current values (in Billion VND and in Million USD).

The figure makes difference between operating expenditures (OPEX) and capital expenditures (CAPEX). It underlines key points of the financial analysis:

- Line 25 - Operating margin: Current revenues less operating expenditures (current revenues exclude balance transfer from VNG). Operating margin is positive (more than 10% of the total current revenues) and is increasing significantly from 2009 to 2013 from USD19 million to USD78 million. The main reason is the impressive increase of the current revenues in 2011 with the creation of new industrial activities within the Province (truck manufacturers, power plants, gold mining company and other production facilities), and the relatively slow annual increase of the OPEX on the period.
- Line 32 – Net margin: Operating margin less debt service. The debt service burden is less than 2 % of the PPC current revenues; consequently, the net margin is not significantly affected by the debt service and confirms the capacity of the PPC to self-finance a significant part of its CAPEX: about 40 % in 2012 and 2013. However, this figure doesn't include the loan guarantee brought by the PPC on behalf the provincial facilities companies such as the Water Supply and Drainage Company.
- Line 48 – Overall closing balance: total revenue less total expenditures before recording of the balancing transfer from VNG. The overall closing balance is negative every year showing the need for balance transfer. The need for balance transfer is about 5% of the total revenues in 2013 (estimates) and is relatively stable. It is much lower than the balance transfer received from Central State Government.
- Line 51 – Overall closing balance after balance transfer. The balance transfer provided by the Central State Government is significantly above the needs. Several reasons can explain this situation: (i) the balance transfer is allocated, based on a 5Y projections prepared by PPC and reviewed by the MoF; clearly, effective payment is not performed based on actual needs, (ii) OPEX do not record possible arrears accumulated on previous years that will need additional revenues to be paid off.
- Lines 52 & 53 – Tentative breakdown of the balance transfer between OPEX and CAPEX. The need for balance transfer is clearly coming from CAPEX (100% from 2009 to 2013).

Table 28: Quang Nam Province (PPC): Fiscal situation 2009-2013

Billion VND (nominal terms)								Million \$ (nominal terms)				
	Items	Calculation	2009 actual	2010 actual	2011 actual	2012 actual	2013 estimates	2009 actual	2010 actual	2011 actual	2012 actual	2013 estimates
1	TOTAL CURRENT REVENUE (excluding balancing trans	6+7	5 869	7 774	11 234	12 222	11 953	279	370	535	582	569
2	Balance Y-1 (if surplus)		78	191	191	296	2					
3	TOTAL CURRENT REVENUE (Y)	5+8+11+14	5 791	7 583	11 043	11 926	11 951	276	361	526	568	569
4												
5	OWN REVENUE	6+7	2 212	2 826	4 079	5 459	4 052	105	135	194	260	193
6	Local direct taxes											
7	Export and import taxes											
8	SHARED TAXES	9+10	1 874	2 760	4 144	3 884	4 824	89	131	197	185	230
9	100% local		650	885	1 235	1 012	1 220	31	42	59	48	58
10	Shared		1 224	1 875	2 909	2 872	3 604	58	89	139	137	172
11	TRANSFERS FROM VNG	12+13	1 705	1 997	2 820	2 583	3 075	81	95	134	123	146
12	Target transfers (less target transfer earmarked to K Inv.)		1 705	1 997	2 820	2 583	3 075	81	95	134	123	146
13												
14	OTHERS											
15												
16	OPERATING EXPENDITURES	18+21+23	5 460	7 164	9 797	10 132	10 312	260	341	467	482	491
17												
18	OWN OPERATING EXPENDITURES	19+20	1 875	2 706	3 486	2 265	2 261	89	129	166	108	108
19	Payroll											
20	Operating costs											
21	TRANSFERS TO DISTRICTS & COMMUNES		3 585	4 458	6 311	7 867	8 051	171	212	301	375	383
22												
23	TRANSFERS TO SOE											
24												
25	OPERATING SURPLUS (balance)	1-16	409	610	1 437	2 090	1 641	19	29	68	100	78
26												
27	DEBT REPAYMENT (PRINCIPAL + INTEREST)	28+29	0	170	204	254	23	0	8	10	12	1
28	Principal			167	201	251	17		8	10	12	1
29	Interest			3	3	3	6		0	0	0	0
30	Outstanding			272	325	174	656		13	15	8	31
31												
32	NET MARGIN	25-27	409	440	1 233	1 836	1 618	19	21	59	87	77
33												
34	CAPITAL INVESTMENT EXPENDITURES		1 739	1 984	3 351	3 803	3 507	83	94	160	181	167
35												
36	INVESTMENT FINANCING NEEDS	34-32	1 330	1 544	2 118	1 967	1 889	63	74	101	94	90
37	if 33<0 = 34											
38	FINANCING	40+43+46	1 036	1 119	1 828	1 710	1 400	49	53	87	81	67
39												
40	OWN CAPITAL INVESTMENT REVENUE	41+42						0	0	0	0	0
41	Land sales											
42	Other own investment revenue											
43	INVESTMENT GRANTS	44+45	956	1 079	1 788	1 615	1 055	46	51	85	77	50
44	General target transfers		741	865	1 561	1 542	939	35	41	74	73	45
45	marked target transfers (ODA and other external financing)		215	214	227	73	116	10	10	11	3	6
46	LOANS (including liquidity facility)		80	40	40	95	345	4	2	2	5	16
47												
48	OVERALL CLOSING BALANCE BEFORE BALANCING T (1+38)-(16+27+34)		-294	-425	-290	-257	-489	-14	-20	-14	-12	-23
49												
50	BALANCING TRANSFER FROM VNG		1 505	1 568	2 215	2 270	2 461	72	75	105	108	117
51	OVERALL CLOSING BALANCE	48-50	1 211	1 143	1 925	2 013	1 972	58	54	92	96	94
52	OPEX: NEED FOR BALANCING TRANSFER		0	0	0	0	0					
53	CAPEX: NEED FOR BALANCING TRANSFER		294	425	290	257	489					

7.4.5 Key ratios

Table 29 below provides three types of key ratios for Quang Nam PPC: (i) growth ratios on 2009-2013 period (in nominal terms), (ii) Costs ratios, (iii) Ratios per capita. It allows to go deeper in the analysis of Table 28, and to profile the financial situation of the Province. The main lessons learnt for Quang Nam fiscal situation are:

- Average growth on the 2009-2013 period: annual current revenues (excluding balance transfer) are growing faster than the OPEX: +19% to compare to +17%. However, after the significant increase of the revenues in 2011, these are almost stable in 2012 and 2013, OPEX raising faster. Direct capital investment decreased in 2013, but it is not necessarily representative of a long-term trend.
- Costs ratios on the 2009-2013 period: Transfers to Districts and Communes represent an average of 71% of the total OPEX of the PPC. It increased significantly on the period in comparison of the average growth of Provincial OPEX.
- Own current revenue plus shared taxes cover about 84% of the OPEX, the remaining part being funded by transfer (target and balance).
- Debt service represents less than 2% of the current revenues. Debt outstanding could be paid off in less than one year of operating surplus. Loan proceeds have been financing about 4% of the total CAPEX on the period.
- CAPEX are 27% of the total expenditures of the PPC, but about 60% if transfer to Districts and Communes are excluded.
- Balance transfer represents 18% of the total revenues of the PPC on the five years. It exceeds significantly the overall need (overall closing balance).
- Ratios per capita: The average current revenue per capita on the 5Y period is USD302, of which about USD90 for CAPEX. The tax effort (compared to GDP) is estimated up to 47%.

Table 29: Quang Nam Province - Key fiscal ratios 2009-2013

	2009 actual	2010 actual	2011 actual	2012 actual	2013 estimates	2009-13 Average
ANNUAL GROWTH						
1 Current revenue (of the year)		31%	46%	8%	0%	19 %
2 - Own revenue		28%	44%	34%	-26%	16 %
3 - Shared taxes		47%	50%	-6%	24%	27 %
4 - Target transfers from VNG		17%	41%	-8%	19%	16 %
5 Operating expenditures		31%	37%	3%	2%	17 %
6 - Own operating expenditure		44%	29%	-35%	0%	5 %
7 - Transfer to Districts & communes		24%	42%	25%	2%	22 %
8 - Transfers to SOE						
9 Capital investment expenditures		14%	69%	13%	-8%	19 %
# Own investment financing						
11 Investment grants		13%	66%	-10%	-35%	2 %
# Balancing transfers		4%	41%	2%	8%	13 %
COSTS RATIOS						
1 Own current revenue + shared taxes / operating revenues	71%	74%	74%	78%	74%	75 %
2 Own current revenue + shared taxes / operating expenditures	75%	78%	84%	92%	86%	84 %
3 Transfers to Districts & Communes & SOE/operating expenditures	↗ 66%	↗ 62%	↗ 64%	↗ 78%	↗ 78%	↗ 71 %
4 Own provincial operating expenditures/total operating expenditures	34%	38%	36%	22%	22%	29 %
5 Debt service / current revenue	0,0%	2,2%	1,8%	2,1%	0,2%	1 %
6 Debt outstanding / operating surplus	↗ 0,00	0,45				
7 Net margin / current revenue (excluding balancing transfer)	7%	6%	11%	15%	14%	11,3%
8 Capital investment Exp. / Total expenditures	24,2%	21,3%	25,1%	26,8%	25,3%	↗ 25 %
9 Capital investment Exp. / Own PPC's expenditures	48,1%	40,8%	47,6%	60,2%	60,6%	↗ 52 %
# Land sales proceeds/Capital investment expenditures						↗ 0 %
11 Target transfers / Capital investment expenditures	55,0%	54,4%	53,4%	42,5%	30,1%	↗ 45 %
# Loan / capital investment expenditure	4,6%	2,0%	1,2%	2,5%	9,8%	↗ 4 %
# Overall closing balance/current revenue (if negative)	5,0%	5,5%	2,6%	2,1%	4,1%	4 %
# Balancing transfers / Overall Closing balance (before transfers)						
# Balancing transfers / Total revenue	21,8%	17,6%	17,0%	16,3%	18,4%	↗ 18 %
RATIOS PER CAPITA						
1 Total current revenue / capita	4 072 433	5 310 224	7 706 211	8 293 463	8 287 795	6 345 583
2 Total current revenue / capita	194	253	367	395	395	302
3 Tax effort (local + shared taxes / GDP)	37,1%	43,1%	55,8%	53,7%	47,9%	47%
4 Own operating expenditures / Capita	1 318 565	1 894 958	2 432 659	1 575 104	1 567 961	1 805 322
5 Own operating expenditures / Capita	63	90	116	75	75	86
6 Debt outstanding/Capita		190 476	226 797	121 001	454 924	↗ 179 425
7 Debt outstanding/Capita		9	11	6	22	↗ 9
8 Capital investment expenditures/Capita	1 222 925	1 389 356	2 338 451	2 644 645	2 432 039	1 898 844
9 Capital investment expenditures/Capita	58	68	111	126	116	90
Population (General Statistics Office of Vietnam - April 2011)						
Population	1 422 000	1 428 000	1 433 000	1 438 000	1 442 000	
Annual growth		0,4%	0,4%	0,3%	0,3%	
GDP / Capita 2007 = 8 760 000 (Province)	10 988 544	12 307 169	13 784 030	15 438 113	17 290 687	
Annual growth in current prices		12,0%	12,0%	12,0%	12,0%	
Inflation (IMF-WB)	6,50%	11,70%	18,10%	6,80%	8,20%	

7.4.6 Fiscal projections to 2025

Assumptions: The objective of the fiscal projections is to assess the capacity of the Quang Nam PPC to repay the ADB – OCR on-lent to the Province by the MoF/VDB to finance urban infrastructure (758 billion VND), the Lai Nghi reservoir (141 billion VND) and the Coco UDA component (445 billion VND).

The total amount of the loan is estimated about USD70 million made at the following conditions: duration: 25 years including a five years grace period for capital repayment, rate estimated at 4%.

Other assumptions consist in increasing the main items in revenue and expenditure on the basis of national or provincial GDP, inflation index, etc. However, these assumptions are preliminary and will need to be adjusted to take into account some features such as social reforms, salaries increase, or specific programs to be implemented by the Province.

The assumptions are summarized within the 4 tables below:

- Basic Index
- OPEX and operating surplus
- Debt service and net margin
- CAPEX and overall closing balance

7.4.7 Main conclusions:

The Quang Nam PPC should have the capacity to pay back the ADB-OCR loan without additional balance transfer from VNG. Possible additional balance transfer should be allocated to some specific policy as mentioned above, but not to additional debt service burden generated by the Project financing plan.

The repayment of the principal is supposed to start smoothly in 2020 and to increase significantly from 2020 to 2025. However, this increase should not affect the key ratios of the PPC, fiscal revenues, raising faster than the debt service.

It is recommended to adjust balance transfer to the effective financing need of the PPC, monitor tightly the increase of the CAPEX with possible competition of other significant capital investment projects with impact on debt service (including guarantee brought to public companies).

Table 30: Index

Index		Projections										
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
QN Province Population	GOS	1 442 000	1 447 000	1 454 000	1 462 000	1 470 000	1 478 000	1 487 000	1 495 000	1 503 043	1 511 129	1 511 129
Annual growth	GOS		0.3%	0.5%	0.6%	0.5%	0.5%	0.6%	0.5%	0.5%	0.5%	0.5%
GDP / Capita 2010 = 11 200 000 (Province)	PPC	17 290 687	19 019 755	20 921 731	23 013 904	25 545 433	28 355 431	31 474 529	35 251 472	39 481 649	44 219 446	49 521 446
Annual growth in current prices	IMF	12.0%	10%	10%	10%	11%	11%	11%	12%	12%	12%	12%
Inflation	IMF	6.8%	8.2%	7.8%	7.5%	7.2%	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
National GDP growth (current prices)	IMF	17%	14%	13%	13%	14%	13%	13%	13%	13%	13%	13%

Table 31: Fiscal Projections – OPEX and operating margins

Billion VND (nominal terms)				Projections											
Items	Average growth 2009-13	Specific assumptions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
1 TOTAL CURRENT REVENUE (excluding balancing transfer)	19 %		11 953	13 480	15 100	16 896	18 903	21 278	23 951	26 990	30 611	34 761	39 521	44 988	51 270
2 Balance Y-1 (if surplus)															
3 TOTAL CURRENT REVENUE (Y)	20 %		11 951	13 480	15 100	16 896	18 903	21 278	23 951	26 990	30 611	34 761	39 521	44 988	51 270
4 Annual growth				13%	12%	12%	12%	13%	13%	13%	14%	14%	14%	14%	14%
5 OWN REVENUE	16 %	Y-1 Prov. GDP + 5 pt	4 052	4 741	5 452	6 270	7 210	8 364	9 702	11 254	13 168	15 406	18 025	21 089	24 675
6															
7															
8 SHARED TAXES	27 %	Y-1 Nat. GDP + 3 pt	4 824	5 310	5 867	6 460	7 106	7 831	8 618	9 497	10 483	11 588	12 831	14 229	15 805
9															
10															
11 TRANSFERS FROM VNG	16 %	Y-1 Inflation	3 075	3 429	3 781	4 166	4 587	5 083	5 631	6 239	6 960	7 766	8 665	9 669	10 790
12															
13															
14 OTHERS		OPEX growth	0												
15															
16 OPERATING EXPENDITURES	17 %		10 312	11 500	12 679	13 969	15 382	17 047	18 885	20 921	23 341	26 043	29 059	32 426	36 185
17 Annual growth				12%	10%	10%	10%	11%	11%	11%	12%	12%	12%	12%	12%
18 OWN OPERATING EXPENDITURES	5 %	Y-1 Inflation + 3%	2 261	2 483	2 761	3 059	3 380	3 725	4 097	4 507	4 958	5 453	5 999	6 599	7 258
19															
20															
21 TRANSFERS TO DISTRICTS & COMMUNES	22 %	Y-1 Prov. GDP	8 051	9 017	9 919	10 911	12 002	13 322	14 787	16 414	18 384	20 590	23 061	25 828	28 927
22															
23 TRANSFERS TO SOE		Y-1 Inflation	0	0	0	0	0	0	0	0	0	0	0	0	0
24															
25 OPERATING SURPLUS (balance)			1 641	1 980	2 420	2 926	3 521	4 232	5 067	6 070	7 270	8 717	10 462	12 561	15 084

Table 32: Debt Service & Net Margin

Billion VND (nominal terms)				Projections												
	Items	Average growth 2009-	Specific assumptions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
26																
27	DEBT REPAYMENT (PRINCIPAL + INTEREST)															
28	Existing and new debt															
29				23	15	18	21	22	24	26	28	28	28	28	28	28
30	Principal			17	5	6	6	6	7	7	7	7	7	7	7	7
31	Interest			6	10	12	14	16	18	19	21	21	21	21	21	21
32	Outstanding			656	83	79	73	66	59	53	46	46	46	46	46	46
33	ADB - OCR loan															
34	Principal			0	0	6	24	42	60	60	74	80	85	82	79	76
35	Interest			0	0	0	6	10	14	16	20	21	21	21	21	21
36	Outstanding			0	0	137	536	935	1 344	1 337	1 324	1 303	1 276	1 248	1 221	1 194
37	Total debt															
38	Principal			23	15	24	45	64	85	86	101	108	113	110	107	104
39	Interest					6	6	6	7	7	20	27	34	34	34	34
40	Outstanding					16	39	58	78	80	81	80	79	76	73	70
41	NET MARGIN															
				1 618	1 966	2 396	2 881	3 457	4 147	4 980	5 968	7 162	8 605	10 352	12 455	14 981

7.5 Financing Ability Quang Binh Components

For the Quang Binh Province's subsidiary loan, because the sub-components are revenue-earning components, three complementary analyses should be provided:

- An incremental financial analysis of the Bao Ninh Tourism and UDA with implication on the capacity of the land sales proceeds to cover the repayment of the loan;
- A corporate based analysis of the wastewater component based on URENCO financial statements with implication on WW tariff policy to, at least cover O&M;
- A fiscal analysis of the PPC that will have to repay the loan to MoF for the whole project.

Table 33: Type of Fiscal Analysis to be undertaken for Quang Binh Components

Borrower	Bao Ninh Urban Development Area	Wastewater collection in the main city	
Quang Bin PPC	Financial statement of the project (incremental) with cashflow calculation based on the cost recovery of the loan (Principal and interest) through the land sales proceeds	URENCO corporate based financial analysis (objective: cost recovery of O&M) with impact on tariff policy	Fiscal analysis (PPC budget) with incorporation of the debt service generated by the total loan.

7.5.1 URENCO Wastewater Utility Analysis

Financial analysis was undertaken for the investments proposed under the ADB loan. All investment costs incurred, or planned to be incurred, by the government up to the end of 2014 were treated as sunk costs. Hence the expected situation at the end 2014 was treated as the without-project scenario. Operating costs and benefits were measured in terms of the incremental values compared to the without-project scenario, after allocating between the loan and other proposed government-financed investments. The investment period for the project investments was planned as 5 years from 2015 to 2019 and the total project life, including the investment period, was assumed to be 30 years. Investment costs derived from the overall project investment plan and were in constant 2013 values. Operation and maintenance (O&M) costs were derived from URENCOs projections of future O&M costs, were adjusted to constant 2013 values based on an annual deflator

Table 34: Existing wastewater tariffs in Dong Hoi

Items	Unit	2012	2013
Wastewater tariff			
Domestic	VND/m3	520	830
School, Hospital, Public	VND/m3	1600	2500
Administration and Military	VND/m3	2200	3500
Small Manufacture	VND/m3	2400	3800
Service, Business	VND/m3	3000	4800

Waste water tariff projections indicate that QB PPC will need to subsidize the O&M and debt service costs at an increasing rate from 2014. To achieve O&M cost recovery, average waste water tariffs are estimated to need to be increased to VND 3013/m³ in 2014, with domestic tariffs increasing to VND 2191/m³. For O&M and depreciation cost recovery these figures are VND 5615/m³ and VND 4082/m³ respectively. These were considered unaffordable for domestic users and more moderate increases in the early years of implementation have been proposed.

Affordability analysis was conducted to determine if the proposed waste water tariffs are affordable. The assumed increase in waste water tariff to VND 876/m³ from 2014, would result in estimated combined water and waste water bill of about VND 115000/month for an average family, equivalent to about 2.8% of monthly household income. Since this value is below the international norm of 4%, they are considered to be affordable.

7.5.2 The Bao Ninh urban development area

The financial analysis of the Bao Ninh UDA project has been finalized based on the data provided by Quang Binh PPC in April 2014 (assumptions regarding the land use plan, total investment costs to implement within the development area, phasing of the project and realistic land prices).

The lack of specific entity (public developer) with financial statements to record income and expenses generated with this ambitious project is considered as an institutional constraint to the financial monitoring and evaluation of the project.

The Bao Ninh UDA project is a real estate project implemented by the Quang Binh PPC. This project should contribute to stimulate tourism industry in the Province. The area is 1264 ha developed in a peninsula, part of the Dong Hoi district –see previous chapters for more details. The content of the project is a mix of tourism activities (resorts), residential, civic facilities, and trade and services. The area dedicated directly to tourism activity is estimated at 511 ha. The number of residential lots is roughly estimated up to 16.223 with a total possible additional population living in the area up to 25.000. The area dedicated to roads and civic services is 34% of the total area. The bridge to access to the Peninsula was built two years ago, contributing to speed up the development of the area. Main infrastructure started to be developed, as the main road 2X2 lines North South all across the area and public beach development. A few resorts started to operate.

Key assumptions:

- Land use rights: the entire land (1264 ha) is transferred to the PPC. The total price of the land accounts for 20% of the total development costs (excluding off-site infrastructure: bridge and 2X2 main road);
- Land compensation: graves have to be replaced outside the site. The total cost for land acquisition is estimated 4% of the total costs and will have to be paid before the beginning of the works.
- Land use plan: the land use plan allocates less than 66% of the total area to transferable land of which 50% to residential plots and 50% to tourism activity, trade and services. The size of the residential plots is 400 m² that seems inappropriate for housing plots, except if tertiary roads will be built to serve the area, which are not accounted in the costs. If they are collective plots, specific attention has to be given to the allowed height of the buildings. 34% of the area is allocated to roads, parking and civic facilities.

-
- **Works:** the PPC will develop the land with basic infrastructure as mentioned above (roads, water and wastewater, drainage and flood protection, street lighting, etc.). The total costs are estimated at VND230 billion to compare to a total costs of VND1 649 billion (VND1.3 billion/m²). Off-site civil works are not accounted.
 - **Commercialization:** The total revenue generated by the UDA comes from commercialization; no grants are awarded. Tourism plots will be offered in full concession up to fifty years, with restrictions regarding constructions to build in site: it is expected 40% of the plots will be lease in 2020 mainly to resorts. Housing plots will be sold (VND2 million/m²).
 - **Schedule and phasing:** the PPC expects to develop the land by phase, on similar rhythm than commercialization. But the construction of the hotels, resorts, houses and buildings would take at least between ten and fifteen years.

Table 35: Physical Assumptions of the Bao Ninh Development

Triệu đồng / In million VND	1	2	3	4	5	6
Hạng mục/ Items		Ghi chú / Comments (Phân theo quy hoạch phân khu BN/ in accordance with the specificity of the Bao Ninh Project.)	Diện tích TB mỗi lô / Average Plot area/category	Tổng diện tích / Total area (in m ²)	Số lô / Number of plots	%
1. Lô đất làm nhà ở- dọc bên đường / Residential plots along the road		Đất dân cư mới/ New residential plots	400	1 020 000	2 550	26%
2. Công trình nhà khác / Other housing		Đất làng xóm hiện hữu/ existing residential plots	400	2 250 000	5 625	
3. Khách sạn & khu nghỉ dưỡng / Hotels & resorts		Phân Du lịch – Nghỉ dưỡng/ Tourism and resort	400	1 080 000	2 725	9%
4. Kinh doanh và dịch vụ / Trade and services		Phân Du lịch – Nghỉ dưỡng/ Tourism and resort	400	2 129 100	5 323	17%
5. Các hoạt động du lịch khác / Other tourism activity		Đất hỗn hợp / Plots for multitask	400	1 890 000	4 725	15%
6. Lô đất cho các công trình công cộng/ Plots for civic facilities		Đất công trình công cộng/Plots for civic facilities	400	230 000	575	2%
Phụ Tổng / Sub-total			400	8 609 100		68%
Đường và công viên / Roads and parkings		Đất công viên cây xanh, TĐTT – Plot for parks and eye care system và trường học, bệnh viện, trường học, nghĩa địa / Plot for hospitals, schools, institutions and graveyard	400	2 310 200	5 776	18%
Khác / Others			400	1 722 400	4 306	14%
Tổng / Total				12 641 700	16 223	100%

Table 36: Cost & Phasing of the Bao Ninh Development

Triệu đồng / In million VND

Hạng mục chi phí / Charges items	Tổng / Total		Trước 2014 / Before 2014 (lũy kế)	2015	2016	2017	2018	2019	2020+
	Số lượng / Amount	%							
1. Thu hồi đất / Land acquisition	326 044	20%		55 541	49 818	65 400	36 711	51 079	67 495
1.1 Thu hồi đất / Land acquisition (giáo UBND)	250 716	15%		41 141	36 902	48 446	29 369	40 863	53 996
1.2 Đền bù đất / Land compensation	62 679	4%		10 285	8 225	12 111	7 342	10 216	13 499
1.3 Thuế và các nghĩa vụ (10% VAT giá trị thu hồi đất) / Taxes and duties (10% VAT on land acq.)	12 649	1%		4 114	3 690	4 843			
2. Thiết kế - Quản lý và Giám sát / Design - Control and supervision	128 262	8%		25 856	20 162	22 547	15 707	18 881	25 110
2.1 Kiến trúc / Layout	56 843			12 252	7 851	10 307	6 249	8 694	11 489
2.2 Kỹ thuật và Giám sát / Engineering & supervision	19 175			2 454	2 944	3 865	2 343	3 260	4 308
2.3 Khác / Others	52 244			11 150	9 366	8 374	7 115	6 926	9 313
3. Các công trình bên ngoài / Off-site works		0%		0	0	0	0	0	0
3.1 Đường hoặc cầu dẫn / Access roads or bridges									
3.2 Khác / Others (1)									
4. Các công trình chính / In-site works	1 080 298	65%		229 172	195 947	131 689	148 833	109 886	264 771
4.1 Chi phí đầu tư / Investment costs	871 922			208 338	176 134	119 717	136 263	96 688	132 783
4.2 Chi phí vận hành khu vực trong 15 năm / Maintenance costs of the area during 15 years	208 376			20 834	17 813	11 972	12 570	13 199	13 988
5. Chi phí vận hành / Operating costs	114 810	7%		18 128	15 896	13 582	12 663	11 592	42 940
5.1 Chi phí vận hành của chủ dự án / Operating costs of the developer for	76 730	5%		15 528	13 296	10 982	10 083	8 992	17 869
5.2 Lãi suất khoản vay / interest of the loan	38 080	2%		2 600	2 600	2 600	2 600	2 600	25 080
Tổng / Total	1 649 415	100%	0	328 697	281 823	233 218	213 914	191 439	400 324
Tổng ngoại trừ chi phí vận hành / Total excluding operating costs	1 534 605			310 569	265 927	219 636	201 251	179 846	357 376
% (lũy kế) / % (cumulative)	100%	0%	0%	20%	37%	51%	64%	76%	100%

Table 37: Financing Plan of the Bao Ninh Development

Triệu đồng / In million VND

1	2	3	4	5	6	7	8	9	10
Mục doanh thu / Revenue items	Dự tính / Projections		Trước 2014 (lũy kế) /	2015	2016	2017	2018	2019	2020+
	ô lượng / Amount	%							
Bán và cho thuê đất / Land sales & leases	3 224 167		0	302 600	437 897	555 002	519 350	598 871	692 424
Dân cư ven mặt phố / Residential standing (along streets)	1 643 623	51%	0	156 361	269 723	310 181	237 805	273 476	314 498
Dân cư / Residential	70 794	2%	0	8 469	7 439	10 266	11 806	13 577	15 613
Khách sạn và khu nghỉ dưỡng / Hotels and resorts	16 571		0	1 254	1 442	2 072	2 303	3 289	5 042
Kinh doanh và dịch vụ / Trades and services	32 369	1%	0	2 448	2 816	4 048	4 655	6 424	9 649
Các hoạt động du lịch khác / Other tourism activity	1 085 499		0	104 328	119 977	172 467	198 337	228 088	282 301
Đất dành cho các công trình công cộng / Plots for civic facilities	375 311		0	31 740	38 501	55 968	64 563	74 018	85 121
Cho thuê đất du lịch / Leases for tourism	0	0%							
Trợ cấp từ Chính phủ / Grants from Central Government	0								
Trợ cấp 1 / Grant 1									
Trợ cấp 2 / Grant 2									
Tổng doanh thu / Total revenues	3 224 167	100%	0	302 600	437 897	555 002	519 350	598 871	692 424

Table 38: Cash Flow of the Bao Ninh Development

Triệu đồng / In million VND

1	2	3	4	5	6	7	8	9	10
	Dự toán / Projections		Trước 2014 (lũy kế) /	2015	2016	2017	2018	2019	2020+
	ô lượng / Amount	%							
Chi phí đầu tư XDCB / Capital expenditures	1 649 415	97%		328 697	281 823	233 218	213 914	191 439	400 324
Trả nợ gốc / Repayment of the principal	57 500	3%		0	0	0	0	0	57 500
Tổng chi phí / Total charges	1 706 915	97%		328 697	281 823	233 218	213 914	191 439	457 824
Dòng tiền / Cash flow				-26 097	156 074	321 784	305 436	407 432	234 600
Dòng tiền lũy kế / Cumulative Cash flow	1 381 715			-43 611	112 463	434 247	739 683	1 147 115	1 381 715
Thuế thu nhập / Profit tax (22 %)									88 071
Dòng tiền lũy kế sau thuế / Cumulative Cash flow after tax	1 293 644			-43 611	112 463	434 247	739 683	1 147 115	1 293 644

- ADB loan: the loan proceeds are disbursed and paid back on the same basis than the ADB conditions to the State Government, plus the VDB management fee applied when the borrower is a utility company.
- Taxes: a 10% VAT has been applied to the land use right transfer. Then a 22% profit tax has been applied to the overall closing balance of the project, to be paid only at the end of the project. This assumption is theoretical, since the profit tax being paid by the company on its overall profit before tax.

Financial analysis: based on the assumptions described above, the cash flow of the project is expected to be highly positive with a FIRR more than 12%. This result is mainly due to the leverage introduced by the low land use price (administrative price) and to the term of the ADB loan. However, the sensitivity to the rate of commercialization is high, and it is recommended to develop the area by phase.

7.6 Quang Binh PPC fiscal analysis

The resident population of the Quang Binh Province is estimated to 853 000 inhabitants with 15% of urban population (census 2009). The Dong Hoi District is a class III City, capital city of the Province with a total population estimated to 113,900 (13% of the provincial population and 90% of the urban population of the Province).

The GDP per capita of the Province is estimated about USD752 that is one of the lowest of the country. The fiscal burden (local revenues per capita / GDP per capita) is 12%.

This Preliminary analysis has been carried out on the basis of the data provided by the MoF for the 2009 to 2013 period – see table below. These data refer specifically to PPC budget by difference with the Local State Budget at the provincial level that aggregates budget of the three levels of local entities (Province, Districts and Communes).

7.6.1 Fiscal situation 2009-2013

The table below summarizes the financial situation of the Province as captured from the very last data provided by DoF in March 2014 and reviewed during the mission by the PPC and the MoF.

The amounts are in current values (in Billion VND and in Million USD).

The figure makes difference between operating expenditures (OPEX) and capital expenditures (CAPEX). It underlines key points of the financial analysis:

- Line 25 - Operating margin: Current revenues less operating expenditures (current revenues exclude balance transfer from VNG). Operating margin is slightly negative in 2012 and 2013 showing a deterioration of the situation because of the significant increase of the OPEX (+24 % per year as an average on the last 5 year period). However the OPEX deficit is still less than 10 % of the current revenues.
- Line 32 – Net margin: Operating margin less debt service. The debt service burden is less than 1 % of the PPC current revenues; consequently, the net margin is not significantly affected. However, the net margin is negative in 2012 and 2013 requesting small amount of balance transfer.
- Line 48 – Overall closing balance: total revenue less total expenditures before recording of the balancing transfer from VNG. The overall closing balance is negative every year showing the need for balance transfer. The need for balance transfer is 12 % of the total revenues in 2013 (estimates) to compare to 6 % in 2009.

- Line 51 – Overall closing balance after balance transfer. The balance transfer provided by the Central State Government is significantly above the needs. Several reasons can explain this situation: (i) the balance transfer is allocated, based on a 5Y projections prepared by PPC and reviewed by the MoF; clearly, effective payment is not performed based on actual needs, (ii) OPEX do not record possible arrears accumulated on previous years that will need additional revenues to be paid off;
- Lines 52 & 53 – Tentative breakdown of the balance transfer between OPEX and CAPEX. The need for balance transfer is clearly coming from CAPEX (84 % in 2012 and 65 % in 2013); showing the inconsistency of the local infrastructure financing system.

Table 39: Quang Binh PPC – Fiscal Situation 2009-13

Billion VND (nominal terms)							Million \$ (nominal terms)				
Items	Calculation	2009 actual	2010 actual	2011 actual	2012 actual	2013 estimates	2009 actual	2010 actual	2011 actual	2012 actual	2013 actual
1 TOTAL CURRENT REVENUE (excluding balancing transfer)	6+7	2 907	4 491	4 967	5 816	6 128	138	214	237	277	292
2 Balance Y-1 (if surplus)			663	179	663						
3 TOTAL CURRENT REVENUE (Y)	5+8+11+14	2 907	3 828	4 788	5 153	6 128	138	182	228	245	292
4											
5 OWN REVENUE	6+7	949	1 200	1 715	1 623	2 108	45	57	82	77	100
6 Local direct taxes		883	1 026	1 536	1 348	1 762	42	49	73	64	84
7 Export and import taxes		66	173	179	275	346	3	8	9	13	16
8 SHARED TAXES	9+10	830	976	1 500	1 309	1 638	40	46	71	62	78
9 100% local		470	489	1 474	1 266	1 574	22	23	70	60	75
10 Shared		360	487	26	43	64	17	23	1	2	3
11 TRANSFERS FROM VNG	12+13	1 128	1 652	1 573	2 221	2 382	54	79	75	106	113
12 Target transfers (less target transfer earmarked to K Inv.)		1 128	1 652	1 573	2 221	2 382	54	79	75	106	113
13											
14 OTHERS		0	0	0	0	0	0	0	0	0	0
15											
16 OPERATING EXPENDITURES	18+21+23	2 782	3 520	4 501	5 946	6 567	132	168	214	283	313
17											
18 OWN OPERATING EXPENDITURES	19+20	738	850	1 099	1 564	1 746	35	40	52	74	83
19 Payroll		168	197	241	284	307	8	9	11	14	15
20 Operating costs		571	653	858	1 280	1 440	27	31	41	61	69
21 TRANSFERS TO DISTRICTS & COMMUNES		2 042	2 668	3 402	4 381	4 819	97	127	162	209	229
22											
23 TRANSFERS TO SOE		2	2	1	1	1	0	0	0	0	0
24											
25 OPERATING SURPLUS (balance)	1-16	125	971	465	-130	-438	6	46	22	-6	-21
26											
27 DEBT REPAYMENT (PRINCIPAL + INTEREST)	28+29	22	27	32	86	40	1	1	2	4	2
28 Principal		22	27	31	84	39	1	1	1	4	2
29 Interest		0	1	1	2	1	0	0	0	0	0
30 Outstanding		161	165	164	268	469	8	8	8	13	22
31											
32 NET MARGIN	25-27	103	943	433	-216	-479	5	45	21	-10	-23
33											
34 CAPITAL INVESTMENT EXPENDITURES		1 094	1 182	1 985	2 615	1 901	52	56	95	125	91
35											
36 INVESTMENT FINANCING NEEDS	34-32	991	239	1 551	2 831	2 379	47	11	74	135	113
37 if 32<0 = 34											
38 FINANCING	40+43+46	767	831	1 089	1 736	1 492	37	40	52	83	71
39											
40 OWN CAPITAL INVESTMENT REVENUE	41+42	156	202	236	248	279	7	10	11	12	13
41 Land sales		71	72	57	70	83	3	3	3	3	4
42 Other own investment revenue		85	130	179	179	197	4	6	9	9	9
43 INVESTMENT GRANTS	44+45	551	599	823	1 300	973	26	29	39	62	46
44 General target transfers		301	309	462	815	571	14	15	22	39	27
45 Earmarked target transfers (ODA and other external financing)		250	290	361	485	401	12	14	17	23	19
46 LOANS (including liquidity facility)		60	30	30	188	240	3	1	1	9	11
47											
48 OVERALL CLOSING BALANCE BEFORE BALANCE TRANSFER	(1+38)-(16+27+34)	-224	592	-462	-1 095	-887	-11	28	-22	-52	-42
49											
50 BALANCE TRANSFER FROM VNG		705	705	1 845	1 901	1 901	34	34	88	91	91
51 OVERALL CLOSING BALANCE	48-50	481	1 297	1 383	806	1 013	23	62	66	38	48
52 OPEX: NEED FOR BALANCING TRANSFER		0	0	0	216	479					
53 CAPEX: NEED FOR BALANCING TRANSFER		224	0	462	1 095	887					

7.6.2 Key ratios

The table below provides three types of key ratios for Quang Binh PPC: (i) growth ratios on 2009-2013 period (in nominal terms), (ii) Costs ratios, (iii) Ratios per capita. It allows to go deeper in the analysis of table 1, and to profile the financial situation of the Province. The main lessons learnt for Quang Binh fiscal situation are:

- Average growth on the 2009-2013 period: annual OPEX are growing faster than the current revenues (excluding balance transfer): +24% to compare to +20%. CAPEX annual growth is lower than OPEX: +15 % to compare to +24%. Balance transfer average annual growth is significantly above the OPEX+CAPEX annual growth, showing a gap between 5Y Plan and effective achievement of the budget.
- Costs ratios on the 2009-2013 period: Transfers to Districts and Communes represent an average of 74 % of the total OPEX of the PPC. It is relatively stable on the period in comparison of the average growth of Provincial OPEX.
- Own current revenue plus shared taxes cover about 60 % of the OPEX, the remaining part being funded by transfer (target and balance).
- Debt service represents less than 1% of the current revenues. Debt outstanding could be paid off in less than one year of operating surplus. Loan proceeds have been financing about 6% of the total CAPEX on the period.
- CAPEX are 27% of the total expenditures of the PPC, but about 60% if transfer to Districts and Communes are excluded.
- Balance transfer represents 25% of the total revenues of the PPC on the five years. It exceeds for about 10% the overall need (overall closing balance).
- Ratios per capita: The average current revenue per capita on the 5Y period is USD233, of which about USD100 for CAPEX. The tax effort (compared to GDP) is estimated up to 37%.

Table 40: Quang Binh Province – Key fiscal ratios 2009-2013

		2009	2010	2011	2012	2013	2008-13	
		actual	actual	actual	actual	estimates	Average	
ANNUAL GROWTH (nominal terms)								
1	Current revenue (of the year)	%	32%	25%	8%	19%	20 %	
2	- Own revenue	%	26%	43%	-5%	30%	22 %	
3	- Shared taxes	%	18%	54%	-13%	25%	19 %	
4	- Target transfers from VNG	%	46%	-5%	41%	7%	21 %	
5	Operating expenditures	%	27%	28%	32%	10%	24 %	
6	- Own operating expenditure	%	15%	29%	42%	12%	24 %	
7	- Transfer to Districts & communes	%	31%	27%	29%	10%	24 %	
8	- Transfers to SOE	%	0%	-41%	0%	0%		
9	Capital investment expenditures	%	8%	68%	32%	-27%	15 %	
10	Own investment financing	%	29%	17%	5%	13%	18 %	
11	Investment grants	%	9%	37%	58%	-25%		
12	Balancing transfers	%	0%	162%	3%	0%	28 %	
COSTS RATIOS								
1	Own current revenue + shared taxes / operating revenues	61%	57%	67%	57%	61%	61 %	
2	Own current revenue + shared taxes / operating expenditures	64%	62%	71%	49%	57%	59 %	
3	Transfers to Districts & Communes & SOE/operating expenditures	73%	76%	76%	74%	73%	74 %	
4	Own provincial operating expenditures/total operating expenditures	27%	24%	24%	26%	27%	26 %	
5	Debt service / current revenue	0,8%	0,7%	0,7%	1,7%	0,7%	1 %	
6	Debt outstanding / operating surplus	1,29	0,17					
7	Net margin / current revenue (excluding balancing transfer)	3,5%	21,0%	8,7%	-3,7%	-7,8%	3,2%	
8	Capital investment Exp. / Total expenditures	28,1%	25,0%	30,5%	30,2%	22,3%	27 %	
9	Capital investment Exp. / Own PPC's expenditures	59,0%	57,4%	63,7%	61,3%	51,5%	59 %	
10	Land sales proceeds/Capital investment expenditures	6,5%	6,1%	2,9%	2,7%	4,4%	4 %	
11	Target transfers / Capital investment expenditures	50,4%	50,7%	41,5%	48,7%	51,2%	48 %	
12	Loan / capital investment expenditure	5,5%	2,5%	1,5%	7,2%	12,6%	6 %	
13	Overall closing balance/current revenue (if negative)	7,7%	-13,2%	9,3%	18,8%	14,5%	9 %	
14	Balancing transfers / Overall Closing balance (before transfers)	315,3%	-119,0%	399,2%	173,6%	214,2%	340 %	
15	Balancing transfers / Total revenue	19,2%	13,2%	30,5%	25,2%	24,9%	23 %	
RATIOS PER CAPITA								
1	Total current revenue / capita	in VND/Capita	3 440 315	4 503 471	5 606 012	5 999 275	7 101 298	4 887 268
2	Total current revenue / capita	in USD/Capita	164	214	267	286	338	233
3	Tax effort (local + shared taxes / GDP)	in %	30,7%	36,6%	41,4%	40,2%	43,3%	37%
4	Own operating expenditures / Capita	in VND/Capita	873 727	1 000 428	1 286 379	1 820 967	2 023 744	1 245 375
5	Own operating expenditures / Capita	in USD/Capita	42	48	61	87	96	59
6	Debt outstanding/Capita	in VND/Capita	190 840	193 639	191 561	311 517	543 213	221 889
7	Debt outstanding/Capita	in USD/Capita	9	9	9	15	26	11
8	Capital investment expenditures/Capita	in VND/Capita	1 294 537	1 390 462	2 324 221	3 044 594	2 202 535	2 013 454
9	Capital investment expenditures/Capita	in USD/Capita	62	66	111	145	105	96
Population (General Statistics Office of Vietnam - April 2011)								
Annual growth		845 000	850 000	854 000	859 000	863 000		
GDP / Capita 2010 = 11 200 000 (Province)			0,6%	0,5%	0,6%	0,5%		
Annual growth in current prices		11 200 000	12 320 000	13 552 000	14 907 200	16 397 920		
Inflation (IMF-WB)			10,0%	10,0%	10,0%	10,0%		
National GDP growth		6,50%	11,70%	18,10%	6,80%	8,20%		
		0%	19%	23%	17%	14%	19 %	

7.6.3 Fiscal projection to 2025

Assumptions: The objective of the fiscal projections is to assess the capacity of the Quang Binh PPC to repay the ADB – OCR on-lent to the Province by the MoF/VDB to finance improvement of the wastewater collection in the old city (173 billion VND) and the Bao Ninh UDA real estate sub-component (58 billion VND).

The total amount of the loan is estimated about USD30 million made at the following conditions: duration: 25 years including a five years grace period for capital repayment, rate estimated at 4%.

Other assumptions consist in increasing the main items in revenue and expenditure on the basis of national or provincial GDP, inflation index, etc., better than on the basis of a unique index as proposed by the PPC (+17%). However, assumptions are preliminary and will need to be adjusted to take into account some features such as social reforms, salaries increase, or specific programs to be implemented by the Province.

The assumptions are summarized within the 4 tables below:

- Basic Index
- OPEX and operating surplus
- Debt service and net margin
- CAPEX and overall closing balance

7.6.4 Main conclusion

The Quang Binh PPC should have the capacity to pay back the ADB-OCR loan without additional balance transfer from VNG. Possible additional balance transfer should be allocated to some specific policy as mentioned above, but not to additional debt service burden generated by the Project financing plan.

The repayment of the principal is supposed to start smoothly in 2020 and to increase significantly from 2020 to 2025. However, this increase should not affect the key ratios of the PPC, fiscal revenues, even with a stabilization of the balance transfer increasing, faster than the debt service.

It is recommended to monitor tightly the increase of the OPEX and to make significant effort on own revenue and shared taxes collection to give more flexibility and more autonomy to the PPC. The objective should be, ultimately, to create a self-financing capacity up to 20% of the capital investment effort.

Table 41: Quang Binh Province – Basic Index

Index		Projections										2021	2022	2023	2024	2025
		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022					
Q8 Province Population	GOS	863 000	866 000	872 000	878 000	885 000	891 000	898 000	904 000	910 040	916 121	922 242	928 404	934 607		
Annual growth	GOS		0.3%	0.7%	0.7%	0.8%	0.7%	0.8%	0.7%	0.7%	0.7%	0.7%	0.7%	0.7%		
GDP / Capita 2010 = 11 200 000 (Province)	PPC	16 397 920	17 873 733	19 482 369	21 430 606	23 573 666	26 166 769	29 045 114	32 530 528	36 434 191	40 806 294	45 703 049	51 187 415	57 329 905		
Annual growth in current prices	IMF		10.0%	9%	10%	10%	11%	11%	12%	12%	12%	12%	12%	12%		
Inflation	IMF		8.2%	7.8%	7.5%	7.2%	7.0%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%		
National GDP growth (current prices)	IMF		14%	13%	13%	14%	13%	12%	12%	12%	12%	12%	12%	12%		

Table 42: Quang Binh Province – Fiscal Projections – OPEX and operating surplus

Amount ADB-OCR loan = 577 500 millions VND (2014-2018)
Billion VND (nominal terms)

Items	Average growth 2009-13	Specific assumptions	2013	Projections										2021	2022	2023	2024	2025
				2014	2015	2016	2017	2018	2019	2020	2021	2022	2023					
1 TOTAL CURRENT REVENUE (excluding balancing transfer)	20 %		6 128	6 941	7 804	8 777	9 959	11 287	12 823	14 575	16 665	19 062	21 813	24 972	28 600			
2 Balance Y-1 (if surplus)																		
3 TOTAL CURRENT REVENUE (Y)	20 %		6 128	6 941	7 804	8 777	9 959	11 287	12 823	14 575	16 665	19 062	21 813	24 972	28 600			
4 Annual growth				13%	12%	12%	13%	13%	14%	14%	14%	14%	14%	14%	15%			
5 OWN REVENUE	22 %		2 108	2 419	2 753	3 132	3 595	4 123	4 756	5 487	6 378	7 416	8 625	10 033	11 674			
6 Local direct taxes	19 %	Y-1 Prov. GDP + 5 pt	1 762	2 026	2 310	2 633	3 028	3 483	4 040	4 686	5 483	6 415	7 506	8 781	10 274			
7 Export and import taxes	51 %	Y-1 Nat. GDP	346	393	443	499	567	640	716	801	895	1 001	1 119	1 252	1 400			
8 SHARED TAXES	19 %		1 638	1 903	2 198	2 536	2 949	3 412	3 911	4 482	5 137	5 889	6 752	7 743	8 879			
9 100% local	35 %	Y-1 Nat. GDP + 3 pt	1 574	1 834	2 123	2 456	2 863	3 321	3 813	4 378	5 026	5 771	6 626	7 608	8 736			
10 Shared	-35 %	Y-1 Inflation	64	69	75	80	86	92	98	104	111	118	125	134	143			
11 TRANSFERS FROM VNG	21 %		2 382	2 619	2 853	3 108	3 415	3 752	4 157	4 607	5 149	5 757	6 436	7 196	8 047			
12 Target transfers (less target transfer earmarked to K Inv.)	21 %	OPEX growth	2 382	2 619	2 853	3 108	3 415	3 752	4 157	4 607	5 149	5 757	6 436	7 196	8 047			
13																		
14 OTHERS																		
15																		
16 OPERATING EXPENDITURES	24 %		6 567	7 218	7 864	8 566	9 412	10 340	11 458	12 697	14 193	15 967	17 740	19 835	22 180			
17 Annual growth				10%	9%	9%	10%	10%	11%	11%	12%	12%	12%	12%	12%			
18 OWN OPERATING EXPENDITURES	24 %		1 746	1 916	2 084	2 266	2 482	2 718	2 997	3 306	3 675	4 087	4 546	5 058	5 630			
19 Payroll	16 %	Y-1 Inflation	307	332	358	384	412	441	470	500	533	567	604	643	685			
20 Operating costs	26 %	Y-1 Prov. GDP	1 440	1 584	1 726	1 882	2 070	2 277	2 528	2 806	3 142	3 519	3 942	4 415	4 944			
21 TRANSFERS TO DISTRICTS & COMMUNES	24 %	Y-1 Prov. GDP	4 819	5 301	5 778	6 298	6 928	7 621	8 459	9 390	10 516	11 778	13 192	14 775	16 548			
22																		
23 TRANSFERS TO SOE	-12 %	Y-1 Inflation	1	1	1	1	1	2	2	2	2	2	2	2	2			
24																		
25 OPERATING SURPLUS (balance)			-438	-277	-60	211	547	947	1 365	1 878	2 472	3 195	4 074	5 137	6 420			

Table 43: Quang Binh Province – Debt Service & Net Margin

Billion VND (nominal terms)			Projections												
Items	Average growth 2009-13	Specific assumptions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
DEBT REPAYMENT (PRINCIPAL + INTEREST)															
Existing and new debt		PPC projections	40	90	90	40	40	40	39	40	40	40	40	40	40
Principal		PPC projections	39	89	89	39	39	39	39	39	39	39	39	39	39
Interest		PPC projections	1.4	1	1	1.1	0.8	0.6	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Outstanding		PPC projections	469	483	473	493	344	281	206	206	206	206	206	206	206
ADB - OCR loan			0	0	3	10	18	26	26	38	46	53	51	49	47
Principal		PPTA	0	0	3	10	18	26	26	38	46	53	51	49	47
Interest		PPTA	0	0	3	10	18	26	26	38	46	53	51	49	47
Outstanding		PPTA	0	0	3	10	18	26	26	38	46	53	51	49	47
Total debt			40	90	93	50	58	66	65	77	85	93	91	89	87
Principal			39	89	89	39	39	39	39	39	39	39	39	39	39
Interest			1.4	1	1	1.1	0.8	0.6	0.4	0.5	0.5	0.5	0.5	0.5	0.5
Outstanding			469	483	473	493	344	281	206	206	206	206	206	206	206
NET MARGIN			-479	-367	-152	160	489	881	1 300	1 801	2 387	3 102	3 983	5 048	6 333

Table 44: Quang Binh Province – CAPEX

Billion VND (nominal terms)			Projections												
Items	Average growth 2009-13	Specific assumptions	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CAPITAL INVESTMENT EXPENDITURES	15 %	PPC Projections + ADB Project	1 901	2 282	2 775	3 243	3 796	4 275	5 045	5 963	5 953	5 953	5 953	5 953	5 953
Annual growth			20 %	22 %	22 %	17 %	17 %	13 %	18 %	18 %	0 %	0 %	0 %	0 %	0 %
INVESTMENT FINANCING NEEDS			2 379	2 649	2 928	3 083	3 307	3 394	3 745	4 152	3 566	2 851	1 970	905	-380
FINANCING	18 %		1 492	1 493	1 628	2 088	2 394	2 578	2 999	3 490	3 847	4 261	4 742	5 300	5 949
OWN CAPITAL INVESTMENT REVENUE	16 %		279	307	335	365	402	442	490	544	610	683	765	857	959
Land sales	4 %	Y-1 Prov. GDP	83	91	99	108	119	131	145	161	181	202	227	254	284
Other own investment revenue	23 %	Y-1 Prov. GDP	197	216	236	257	283	311	345	383	429	481	538	603	675
INVESTMENT GRANTS	17 %	PPC Projections/CAPEX (excluding ADB)	973	1 128	1 320	1 550	1 819	2 136	2 508	2 945	3 237	3 578	3 977	4 444	4 990
Earmarked target transfers (ODA and other external financing)	13 %	PPC Projections (?)	401	460	538	635	749	884	1 043	1 231	1 231	1 231	1 231	1 231	1 231
LOANS (including ADB-OCR loan)	41 %	10% - 30%-30%-30%	240	58	173	173	173								
OVERALL CLOSING BALANCE BEFORE BALANCING TRANSFER			-887	-1 155	-1 100	-995	-912	-916	-746	-662	280	1 410	2 772	4 396	6 329
BALANCING TRANSFER FROM VNG			1 901	1 901	1 901	3 070	3 070	3 070	3 070	3 070	4 000	4 000	4 000	4 000	4 000
OVERALL CLOSING BALANCE			1 013	746	801	2 075	2 158	2 254	2 324	2 408	4 280	5 410	6 772	8 396	10 329

Index			Projections												
Index			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
QB Province Population	GOS		863 000	866 000	872 000	878 000	885 000	891 000	898 000	904 000	910 040	916 121	922 242	928 404	934 607
Annual growth	GOS			0.3 %	0.7 %	0.7 %	0.8 %	0.7 %	0.8 %	0.7 %	0.7 %	0.7 %	0.7 %	0.7 %	0.7 %
GDP / Capita 2010 = 11 200 000 (Province)	PPC		16 397 920	17 873 733	19 482 369	21 430 606	23 573 666	26 166 769	29 045 114	32 530 528	36 434 191	40 806 294	45 703 049	51 187 415	57 329 905
Annual growth in current prices	IMF		10.0 %	9 %	9 %	10 %	10 %	11 %	11 %	12 %	12 %	12 %	12 %	12 %	12 %
Inflation	IMF		8.2 %	7.8 %	7.5 %	7.2 %	7.0 %	6.5 %	6.5 %	6.5 %	6.5 %	6.5 %	6.5 %	6.5 %	6.5 %
National GDP growth (current prices)	IMF		14 %	13 %	13 %	14 %	13 %	12 %	12 %	12 %	12 %	12 %	12 %	12 %	12 %

Ratio			Projections												
Ratio			2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Debt service / current revenues			1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %	1 %	0 %	0 %	0 %	0 %

Table 45: Provincial capital investment Projects in Dong Hoi 2006-2014

million VND	2010	Total	Implementation period
Provincial Capital invest in Dong Hoi	143 747	697 413	2006-2014
in USD	7	33	
QB University office	37 272	149 259	2007-2013
Counterpart fund for environment protection project of central coastal cities	55 500	351 840	2006-2014
60m wide road in Bao Ninh	30 976	130 000	2009-2012
Embankment at the east of Nhat Le river	19 999	66 314	2009-2012

Appendix A - References

Appendix A: References

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Appendix B – Design & Monitoring Framework

A. Project Design and Monitoring Framework

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Improved urban environment in Dong Hoi and Hoi An	By 2020: Incidence of water borne diseases and water related diseases reduced from 30% (of surveyed households have experienced in the last 3 years) in 2013 to less than 10% in 2020 in Dong Hoi and Hoi An	Government reports and statistics	Assumptions Favorable business climate prevails in participating provinces and cities Risks Extreme events occur more frequently due to climate change
Outcome Improved access to climate change resilient urban infrastructure in Dong Hoi and Hoi An	By 2020: Dong Hoi: New pilot urban areas in Bao Ninh Peninsula developed in accordance with climate change resilient urban plans serving new population of 13,000 Dong Hoi: dune complex in Bao Ninh Peninsula controlled and protected in accordance with the protection plan Dong Hoi: Number of households served by improved/new wastewater collection and treatment increased from 1,721 to 6,356 including poor HHs (baseline 535 poor HHs of which 316 are female headed). Hoi An: New pilot urban areas along Co Co River developed in accordance with climate change resilient urban plans serving new population of 9,000 Hoi An: Damages by coastal flooding reduced by \$2.0 million per year Hoi An: Cost/revenue ratio	Provincial reports and statistics of Quang Binh and Quang Nam Quang Binh URENCO annual reports Quang Nam WSDC annual reports Project progress reports Project completion report	Assumptions Central, provincial, and city governments are fully committed to the Project Risks Associated facilities are constructed and operated timely In adequate subsidies are provided for wastewater management in Dong Hoi and water supply in Hoi An prior to achieving cost recovery Stakeholders in the river basins do not cooperate to operationalize the flood warning and management system in Hoi An

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	of water supply improved from 0.9 to 0.6		
Outputs 1. Dong Hoi New and Improved Climate Change Resilient Urban Infrastructure 1.1 Bao Ninh Urban Development	By 2020: The climate change resilient land use and urban management plan for the new pilot urban area in Bao Ninh Peninsula is approved 5.8km of connecting roads are constructed Wastewater networks are built comprising 13km of gravity sewer, 3.5km of pumping main, and 3 pump stations Urban drainage system is built comprising 11.6km of roadside swales, detention storage ponds for 1.6ha, and 7km of pipe to final outfall Urban flood warning system is established with input in design and implementation from VNWU management staff/community members (at least 30% females) Measures to protect dune complex are developed and implemented with input into design and implementation from community members (at least 30% female)	Construction records Project progress reports ADB review missions Project completion reports	Assumptions Project documents are approved timely Risks Adequate counterpart funds are not made available
1.2 Wastewater Management in Existing City Area	25km of tertiary sewerage is constructed 7,000 house connections are built. Poor HHs (baseline of 535 poor HHs with 316 female headed HHs) in project area receive connection	Construction records Project progress reports ADB review missions Project completion reports	

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	<p>assistance</p> <p>3.1km of combined drainage systems are constructed/upgraded including 1 pumping station</p> <p>10 combined sewer overflows and 17 pumping stations are equipped with telemetry systems</p> <p>URENCO staff are trained in operational management of the drainage systems (at least 30% of participants are women)</p>		
<p>2. Hoi An New and Improved Climate Change Resilient Urban Infrastructure</p> <p>2.1 Climate Change Proofing Urban Development</p>	<p>Green buffer zone is built along Co Co River</p> <p>30km of road networks with drainage systems, water supply and street lights are constructed</p> <p>25km of secondary, 41km of tertiary sewerage and one pumping station are constructed</p> <p>4.86km of access road to connect with Cua Dai Bridge is constructed</p>	<p>Construction records</p> <p>Project progress reports</p> <p>ADB review missions</p> <p>Project completion reports</p>	<p>Assumptions</p> <p>Project documents are approved timely</p> <p>Risks</p> <p>Adequate counterpart funds are not made available</p>
2.2 Integrated Flood Management and Coastal Protection	<p>Phap Bao Lake is dredged (80,000m³)</p> <p>Flood forecast and warning system covering Vu Gia and Thu Bon river basin is established with input in design and implementation from VNWU management staff/community members (at least 30% females)</p> <p>5.4km of Road 608 is elevated</p>	<p>Construction records</p> <p>Project progress reports</p> <p>ADB review missions</p> <p>Project completion reports</p>	
2.3 Water Source	A new water intake is	Construction records	

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Protection and Utility Efficiency	<p>constructed including an inlet gate, raw water pumping station, and associated pipeline</p> <p>Lai Nghi Reservoir is dredged (530,000m³)</p> <p>Community consultations on conjunctive use scheme (drinking water/irrigation/recreation) include 50% women participation</p> <p>Non-revenue water reduction program is implemented</p> <p>Management information system is introduced</p>	<p>Project progress reports</p> <p>ADB review missions</p> <p>Project completion reports</p>	
3. Improved competencies in urban environmental management and climate change adaptation	<p>Knowledge and skills of at least 20 PMU staff are strengthened in urban management, environmental protection, climate change adaptation (at least 30% of participants are women)</p> <p>At least 20 PMU staff are trained on project administration and implementation, particularly on financial management, procurement, safeguards, gender, and monitoring and reporting (at least 30% of participants are women)</p> <p>Programs to raise awareness on environmental protection and public health are conducted (at least 30% of participants are women)</p>	<p>Project progress reports</p> <p>ADB review missions</p> <p>Project completion reports</p>	<p>Assumptions</p> <p>PMU staff are in place and available for the capacity development programs</p> <p>Risks</p> <p>PPCs do not approve and implement cost recovery proposals</p>

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Activities with Milestones 1. Dong Hoi New and Improved Climate Change Resilient Urban Infrastructure <u>Bao Ninh Urban Development</u> 1.1 Complete detailed designs and update EMPs and RPs by 2015 1.2 Complete land acquisition and resettlement activities by 2017 1.3 Conduct prequalification and bidding by 2016 1.4 Sign contracts by 2018 1.5 Complete civil works and equipment installation by 2020 1.6 Climate change resilient land use and urban management plan completed by 2018 1.7 Urban flood warning system established and operational by 2019 1.8 Coastal and dune protection measures established and implemented by 2020 <u>Wastewater Management in Existing City Area</u> 1.9 Complete detailed designs and update EMPs and RPs by 2015 1.10 Complete land acquisition and resettlement activities by 2017 1.11 Conduct prequalification and bidding by 2016 1.12 Sign contracts by 2018 1.13 Complete civil works and equipment installation by 2020 2. Hoi An New and Improved Climate Change Resilient Urban Infrastructure <u>Climate Change Proofing Urban Development</u> 2.1 Complete detailed designs and update EMPs and RPs by 2015 2.2 Complete land acquisition and resettlement activities by 2017 2.3 Conduct prequalification and bidding by 2016 2.4 Sign contracts by 2018 2.5 Complete civil works and equipment installation by 2020 <u>Integrated Flood Management and Coastal Protection</u> 2.6 Complete detailed designs and update EMPs and RPs by 2015 2.7 Complete land acquisition and resettlement activities by 2017 2.8 Conduct prequalification and bidding by 2016 2.9 Sign contracts by 2018			Inputs ADB OCR Loan: \$100.00 million Grant Cofinancing: \$5.20 million PPSSF Grant: \$1.75 million Government: \$28.95 million
Activities with Milestones <u>Water Source Protection and Utility Efficiency</u> 2.12 Complete detailed designs and update EMPs and RPs by 2015 2.13 Complete land acquisition and resettlement activities by 2017 2.14 Conduct prequalification and bidding by 2016 2.15 Sign contracts by 2018 2.16 Complete civil works and equipment installation by 2020 2.17 Non revenue water by 2018 2.18 Management information systems introduced and operational by 2019			
3. Improved competencies in urban environmental management and climate change adaptation 3.1 Establish PMUs with qualified staff by 2014 3.2 Recruit and mobilize consultants by 2015 3.3 Review and update the financial cost recovery and management proposals by 2016 3.4 Prepare guidelines/manuals, and develop training programs and manuals for financial management, operation and maintenance, and safeguards by 2017 3.5 Conduct training for PPCs, URENCO, and WSDC by 2020			

3.6 Develop public health and environmental protection awareness programs and materials for beneficiaries by 2017	
3.7 Conduct awareness programs by 2020	

ADB = Asian Development Bank, EMP = environmental management plan, GDP = gross domestic product, km = kilometer, m = meter, m³ = cubic meter, OCR = ordinary capital resources, PMU = project management unit, PPC = Provincial People's Committee, RP = resettlement plan, WSDC = Water supply and drainage company.
Source: Asian Development Bank.

Appendix C – Poverty & Social Assessment

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Accronyms, Abbreviations & Units

3Rs	Reduction, Recycling, Reuse
AAGR	Average Annual Growth Rate
ADB	Asian Development Bank
ADF	Asian Development Fund
AH	Affected Households
AIC	Average Incremental Cost
ALC	Active Leakage Control
AP	Affected Persons
CAP	Corrective Action Plan
CC	Climate Change
CCAP	Climate Change Adaptation Plan
CCESP	Coastal Cities Environmental Sanitation Project (World Bank financing)
CIPR	Construction Investment Project Report
CPC	City Peoples Committee
DARD	Department of Agriculture and Rural Development
DDR	Due Diligence Report
DMA	Demand Management Area
DMS	Detailed Measurement Survey
DOC	Department of Construction
DONRE	Department of Natural Resources and Environment
DP	Displaced Persons
DPI	Department of Planning and Investment
DMF	Design and Monitoring Framework
EA	Executing Agency
EGM	Effective Gender Mainstreaming
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ENPV	Economic Net Present Value
FMA	Financial Management Assessment
FSR	Feasibility Study Report
GAP	Gender Action Plan

GDP	Gross Domestic Product
IA	Implementing Agency
IEE	Initial Environmental Examination
IOL	Inventory of Loss
IPCC	Inter -Governmental Panel on Climate Change
JSC	Joint Stock Company
LRAP	Local Resilience Action Plan
MNF	Minimum Night Flow
MOF	Ministry of Finance
MOLISA	Ministry of Labor, Invalids and Social Affairs
MPI	Ministry of Planning & Investment
NGO	Non-Government Organization
NPV	Net Present Value
NRW	Non Revenue Water
NTP	National Target Program
OCR	Ordinary Capital Reserve
PAM	Project Administration Manual
PPC	Provincial Peoples Committee
PPT	Parts per thousand (1 ppt salinity = 2 g/l)
PPM	Parts per million (1 ppm salinity = 2 mg/l)
RAP	Resettlement Action Plan (WB)
RP	Resettlement Plan
SCADA	Supervisory Control And Data Acquisition
SCCC	Steering Committee on Climate Change
SEA	Strategic Environmental Assessment
SEDP	Socio-Economic Development Plan
SPS	Safeguard Policy Statement (ADB 2009)
UDA	Urban Development Area
UN	United Nations
VHLSS	Vietnam Household Living Standards Survey
VWU	Vietnam Women's Union
WB	World Bank
WSC	Water Supply Company (as in Quang Nam WSC)
WSD	Water Supply Division (as in Hoi An WSD of Quang Nam WSC)

WSZ Water Supply Zone

1. Introduction

1.1 Project Description

The impacts of climate change are becoming particularly severe in the coastal cities of Vietnam. Sea level rise delays the discharge from the drainage system in estuarine areas, reverses river flows during high tide, filling reservoirs with salt water, and causing serious damage to urban infrastructure facilities. Flooding is impacted by high downstream water levels, preventing the rapid evacuation of floodwaters. With the increasing sea levels and potential changes in storm intensity, this situation is likely to become both more uncertain and most likely exacerbated. Two cities – Dong Hoi and Hoi An – have been selected due to their exposure to climate change impacts and need for improved urban infrastructure and water/wastewater services. The project can also be seen to represent a pilot project for the development of urban municipal services in the coastal cities, thereby providing a timely model for development in accordance with the GOV strategies for climate change (CC).

For **Dong Hoi**, development of tourism from less than 4% of current GDP is understood to be a major developmental target of the provincial authorities. In terms of wastewater, in city storm water/drainage and also solid waste the city has benefitted from funding from the World Bank to upgrade service provision in these critical areas. In relation to wastewater, there is a need to provide for connections and missing tertiary sewers to enable the full benefits from the future wastewater treatment plant to be realized; development and linking of the Bao Ninh area to the Duc Ninh treatment plant would also be a future priority. Flooding linked to typhoons is a common almost annual occurrence. Recent floods in 2010 created widespread damage in Dong Hoi and loss of life. Climate Change through raising sea levels, possible increasing intensity of typhoons and therefore increased rainfall intensity and storm surge related wave set-up will most likely exacerbate these impacts. The current World Bank financed project is addressing many of the structural issues in relation to storm drainage in the old city centre. However, key areas for focus in this project are the improvements of coastal protection and erosion of the Bao Ninh Peninsula and the development of non-structural measures including dune restoration and coastal zoning in a first phase and flood forecasting and early warning systems as a second phase.

Hoi An provides a major contrast to Dong Hoi in terms of development with a much higher percentage of overall GDP from tourism. This in part reflects its geographic location near to Danang favouring international transport and also the increased amount of local tourist attractions, notably the old city recognized by UNESCO as a World Heritage Site. Hoi An consequently has a large and growing tourist infrastructure which needs to be rapidly supported by improved urban environmental management and protected from the impacts of flooding and saline intrusion, both of which are likely to be exacerbated by climate change. Hoi An is currently expanding its water supply infrastructure (treatment and networks) and these expansions would appear to be sufficient for a number of years. However, there are known deficiencies in the current resource (high costs and salinity issues) and unaccounted for water is relatively high (around 30%). Flooding in Hoi An like Dong Hoi is an annual event. The last major flooding occurred in 2011 causing widespread damage and flooding of the old historical city, including the old Japanese bridge. Hoi An with assistance from UN Habitat has developed a detailed Climate Change Adaptation Plan and has put into place a series of measures dealing with climate change. With regard to flooding while there has been a lack of investment in flood protection

measures¹ in Hoi An itself, the most effective measures are those in the upstream river basin, notably in relation to reservoir regulation and flood warning systems.

Both cities are suffering significantly from coastal erosion. The beach at Cua Dai in Hoi An has been eroded up to 150 m in the period 2004 to 2012; in Dong Hoi there is marked erosion of the Bao Ninh peninsula near to the mouth of the Nhat Le river. The inclusion of key protection measures in the existing and proposed tourist zones in both cities are a key priority for government climate change related investment.

The proposed Project's expected impact will be continued economic growth and improved quality of life in the coastal cities of Dong Hoi and Hoi An. The outcome of the Project will be improved access to climate resilient infrastructure and urban environmental services in the project cities. The outputs are:

1. **Dong Hoi New and Improved Climate Change Resilient Urban Infrastructure** (1.1. Bao Ninh Urban Development, 1.2 Wastewater Management in Existing City Area);
2. **Hoi An New and Improved Climate Change Resilient Urban Infrastructure** (2.1 Climate Change Proofing Urban Development, 2.2. Integrated Flood Management and Coastal Protection, 2.3 Water Source Protection and Utility Efficiency); and
3. **Improved competencies in urban environmental management and climate change adaptation**

with a focus on (i) wastewater collection and treatment; (ii) flood/coastal protection and erosion control; (iii) water source protection from saline intrusion; (iv) climate proofing urban development; and (v) institutional capacity strengthening. These components represent environmental "hot spots" for Dong Hoi and Hoi An.

1.2 Policy Environment

1.2.1 Introduction

Viet Nam has undergone a major socio-economic transformation since it embarked on the transition from planned to market economy in the late 1980s. People's lives differ significantly, and not only because their incomes are higher and their poverty rates are lower. They are more likely to live in cities, have a wider array of jobs available – especially outside of agriculture – have better capabilities to travel, and to communicate with others both internally and internationally.

The poverty reduction rate for Viet Nam as a whole is the most impressive in South East Asia. Vietnam has already achieved, or is on track to achieve, most of the MDGs. Of all the MDGs, Viet Nam has made the most impressive progress on MDG 1 on poverty reduction. From a poverty rate of 58.1 percent in 1993, Viet Nam successfully reduced poverty to an estimated rate of 14.5 percent in 2008 – a reduction of 75 percent. The food poverty rate reduced by more than two-thirds, from 24.9 percent in 1993 to 6.9 percent in 2008. Poverty has been alleviated among all demographic groups, in urban and rural areas, and across geographical regions. Progress in reducing malnutrition has also been significant, falling from 41 percent to 11.7 percent in 2011². The proportion in extreme hunger fell from 24.9% in 1993 to 7% in 2008 (MDG 2010). It achieved universal primary education in 2000 and is on track to achieving universal secondary education. It had reduced under-five mortality from 58% in 1990 to 24% in 2010 while infant mortality rates fell from 44.4% to 16% over this period.

¹ notably, the old city embankment which has been already approved and included as one of 61 measures in the nationwide climate change target program

² *UNDP Report on Achievement of MDGs – Vietnam*. 2011

1.2.2 GoV Poverty Reduction and Economic Development Strategies

The Socio-Economic Development Strategy, 2011–2020, approved in January 2011, envisions Viet Nam becoming a modern industrialized nation by 2020. Vietnam's Socio-Economic Development Plan (SEDP2011–2015) focus areas to achieve this goal are economic restructuring, human resource development, and infrastructure improvement. Over the past five years, there has also been growing policy momentum around social protection issues, motivated by a concern to reduce poverty and vulnerability emphasized in the country's first and second phase national development plans, the Socio-Economic Development Plans (SEDP 1 2001-2005 and SEDP 2 2006-2010). Viet Nam now has an array of social protection programs in place which include: *social assistance programs*, such as the National Targeted Program for Poverty Reduction (NTPPR), *social insurance schemes*, such as a health insurance program which covers all children under the age of six as well as all households below the poverty line, *social/welfare services*, including programs targeted at child protection and domestic violence, and *social equity measures*, such as the 2006 Gender Equality Law and the 2007 Gender Violence Law.

1.2.3 Measures of Poverty

The General Statistics Office (GSO) in Viet Nam estimates poverty rates through household living standard survey (HLSS) every two years based on a sample of 30,000 households. GSO calculates two poverty lines – the food poverty line and a general poverty line. The food poverty line is calculated as the expenditure required to purchase a “typical” basket of food items in Vietnam that provides 2100 calories, given Vietnamese food consumption patterns. The general poverty line is based upon the food poverty line but allows for minimum non-food expenditure.

The official national poverty lines⁴ applied for the period of 2011 – 2015 as:

1. Poverty households in rural area are households with average income of 400,000VND/person/month (i.e, 4,800,000VND/Person/year) and lower.
2. Poverty households in urban area are households with average income of 500,000VND/person/month (i.e, 6,000,000VND/Person/year) and lower.
3. Near poverty households in rural area are households with average income range from 401,000VND/person/month to 520,000VND/person/month.
4. Near poverty households in urban area are households with average income range from 501,000vnd/person/month to 650,000vnd/person/month

With the new poverty line, Vietnam's percentage of poor households was estimated at 12 percent at the end of 2011.

⁴ "Decision of the Prime Minister 9/2011/QĐ-TTĐ: Promulgating standards of poor households, poor households to apply for stage from 2011 to 2015". Portal Electronic Government (Vietnam). 2013. Decree 09/2011/QĐ-TTĐ dated 30/1/2011 on “Poverty and near poverty line” apply for the period 2011-2015 indicated:

1.2.4 National Gender Context

Viet Nam holds a reputation throughout the region for relative gender equality and has been able to minimize gender gaps in areas such as education, access to health care, and some aspects of employment. Viet Nam has made strong progress on its gender equality targets. It has been very successful in increasing girls' participation in education at primary and secondary levels. The labour force participation rate is 73 percent for women, compared to 82 percent for men. Women's representation in the National Assembly is currently 24.4 percent⁵.

Over the last few decades, Viet Nam has made striking progress in improving people's wellbeing and reducing gender disparities, reflecting the country's remarkable efforts at reducing poverty and the government's commitment to achieving gender equality. Efforts to narrow gender gaps and invest in human capital have made Viet Nam one of the countries in East Asia that has seen the most rapid change in closing gender gaps in 20 years as of December 2006. These efforts range from the successful delivery of educational and health services for both females and males to improvements in accessing opportunities to work and participate in decision-making. However, there are still differences especially among the poor and vulnerable households in rural and mountainous areas.

1.2.5 Gender - Legal Framework

Viet Nam is strongly committed to gender equality and women's empowerment, as reflected in the Law on Gender Equality, 2006—supported by Asian Development Bank (ADB) technical assistance—that guarantees equal rights to women and requires gender strategies at the ministerial level. The Gender Equality Department was created in the Ministry of Labor, Invalids, and Social Affairs to help implement the Law on Gender Equality. In 2007, Viet Nam passed the Law on Domestic Violence Prevention and subsequently launched a public awareness campaign targeting men. The government in July 2011 adopted the National Program on Gender Equality 2011-2015. Other important legislation adopted to protect women's rights includes the Law on Anti-Human Trafficking, 2011. The penal code provides the legal framework for prosecuting crimes of rape, including marital rape under the domestic violence law.

The Viet Nam Women's Union (VWU), a mass organization, has created a vast network of members from the central to the grassroots level, with branches in every province and commune. The VWU implements an array of programs in a range of sectors, including health, education, credit, and training, to support women's development. Women have to become members of the VWU to receive support, which pays special attention to the poor. The VWU is thus an effective mobilizing force for gender equality, but uneven capacity among VWU officials constrains effectiveness, particularly in ethnic minority areas.

1.2.6 ADB Country Partnership Strategy

The ADB Country Partnership Strategy (CPS) defines ADB's strategic approach in Viet Nam for 2012-2015. The key principles of the new CPS are (i) alignment with the priorities of the Socio-Economic Development Plan (SEDP), 2011–2015 that intersect with Strategy 2020; (ii) focus on value-addition and innovative solutions; (iii) response to the government's commitment to economic restructuring and related reforms; and (iv) strategic partnerships with other development partners to implement commitments under the Paris Declaration. Strategy 2020 enables ADB to help Viet Nam respond to environment and climate change concerns to ensure sustainable development and protection for the poor, as well as to benefit from the empowering of women. The SEDP focus areas of economic restructuring, human resource development, and infrastructure improvement are shared with Strategy 2020.

⁵ UNDP Report on Achievement of MDGs – Vietnam. 2011

ADB will support Viet Nam's goal to rise to upper MIC status through three pillars: inclusive growth, enhancing economic efficiency, and environmental sustainability. The CPS indicates that the main constraints on further poverty reduction are low returns on social sector investments due to inefficient planning and implementation, lack of access to social infrastructure, an inadequate social safety net, and vulnerability to natural disasters and climate change. The poor are particularly vulnerable to food inflation, which is considerably higher in Viet Nam than in other regional countries due to its market structure.

Gender equity. The Country Partnership Strategy notes that women's participation in the labor force is high. The gender gap in earnings is much narrower than in many other Asian countries. Women are 25.8% of National Assembly representatives, which is one of the highest rates in the region. However, significant challenges remain regarding the high incidence of gender-based violence, low women's participation in public decision-making, the highly gender-segregated labor market, and rising male sex ratios at birth. Gender disparities are more marked in rural areas and among ethnic minorities. Barriers to women's public participation include unequal burdens of household and reproductive responsibility, traditional values and attitudes related to women's roles, official rules and regulations that are gender biased, and unequal opportunities for training and capacity development.

Inclusive growth. ADB's assistance will help integrate the poor and other vulnerable groups and segments of society in the development process through better access to opportunities arising from improved infrastructure, microfinance, rural development and social services. ADB will strive to empower the poor, the vulnerable and women, addressing the issues of income and other gaps in society that require enhanced social services and attention to gender equity. ADB will support gender equity by adopting gender mainstreaming across sectors.

Environmental sustainability. Well-planned and timely responses to environment and climate change challenges at the national and sub-regional level, appropriate natural resource management, and the adoption of clean technology in infrastructure development are key to achieving sustainable development while protecting the poor. Focusing climate change responses on adapting critical infrastructure and building resilience in coastal and low-lying areas will safeguard productive sectors of the Vietnamese economy, including human and natural resources.

1.2.7 Sector Analysis - Climate Change & Urban Environment in Vietnam

The PPTA consultants completed a sector analysis of climate change and urban environment, particularly as it pertains to the two project cities i.e. Dong Hoi and Hoi An. According to the Intergovernmental Panel on Climate Change (IPCC), there is clear evidence that average air and ocean temperatures are increasing and that sea levels are rising. The most likely impact of climate changes for Vietnam are increases in average temperature, drier dry seasons, wetter wet seasons, and an increase in sea level by 2100 (from a baseline of 1980–99) of somewhere between 25 cm and 1 meter.

Vietnam's Socio-Economic Development Plan (SEDP), 2011–2015 accords high priority to construction of urban infrastructure, taking into account environmental protection, in which special importance is attached to (amongst others) sewerage systems, waste and water treatment facilities, facilities for collection, transport, treatment and burial of waste, especially hazardous waste in urban areas and industrial zones. The government of Vietnam adopted its National Target Program to Respond to Climate Change (NTP-RCC) in December 2008 to determine the consequences of climate change and establish national priorities. Viet Nam is implementing a number of projects/policies for achieving the millennium development goals (MDGs) and the Viet Nam development goals (VDGs). Viet Nam has been making commendable progress on

environmental sustainability but is unlikely to achieve MDG 7 by 2015. Climate change is widening the gaps in reaching key targets of the goal.

The Project Cities of Dong Hoi and Hoi An are located in the Northern/Central Coastal Region which has historically been one of the most disaster prone in Vietnam, threatened repeatedly by floods and typhoons. Climate change is likely to make these disasters more frequent and severe (by changing the severity of the typhoon and by raising sea levels), posing particular risks to the majority of people whose livelihoods depend upon tourism, agriculture and aquaculture.

1.3 Methodology and Organization of the Report

1.3.1 Methodology

An initial scoping study to identify the stakeholders and issues was completed in June 2013. For this study, interviews were completed with government and agency staff. Key informant interviews were held with government officials, City Women's Union staff, Commune/Ward heads and other stakeholders such as the Quang Nam Water Supply and Drainage Company and the Bien Ban Irrigation Management Board. Informal discussions were also held with female homestay tourism operators and female residents of wards/communes. This included an extensive livelihood interview with a female entrepreneur in the new urban development of Tan Thinh unit, Cam An Ward. To develop further understanding of social and gender issues as well as climate change and project related issues, focus groups were held with women householders, women and men farmers, females and males with mixed occupations, urban Nite Market sellers, female recyclable collectors and irrigation staff of the Cam Chau collective.

Willingness to pay and affordability assessments

A public perception survey was conducted to identify public problems, satisfaction with the level of urban services, development priorities, and perceptions toward local authority administration efficiency, quality of urban services, and willingness to pay (demand) and affordability (social inclusion) for proposed improved services. The data collection questionnaire and focus group protocols were developed through consultations with PPTA team members, especially the economist and financial analyst with the objective of providing resident and private sector perspectives on these aspects of urban services.

The willingness to pay i.e. demand for services research was designed to provide input into how likely residents and tourism operations were to connect to the service as well as to pay the necessary tariffs for using the service. Without an indication of demand, project feasibility is uncertain e.g. if respondents indicated they intended to utilize alternate sources such as drilled wells or groundwater rather than the water supply service, or not to connect to the water supply service at any cost, the proposed project investment would not be feasible. Connection costs are variable, depending on the distance of the residence from the "pipe", either the water supply or the wastewater system. The distance to the pipe determines the number of feet to be trenched, pipe laid, refilled and connected i.e. the connection cost and is specific to each residence. The monthly tariffs are based on a standard formula, depending on the nature of the user i.e. commercial enterprises pay more for water per m³ and wastewater use than do households. To determine future sustainability and self financing system potentials, the willingness to pay analysis also included questions about residents and private sector operators conditions concerning their willingness to pay more for the service.

Affordability on the other hand indicates a householder's economic and financial considerations when considering ability to pay for 1) connection costs which can be very high depending on the

distance from “the pipe” and 2) monthly tariffs. A service is not affordable for a HH if these costs and ongoing charges cannot be paid. Affordability research indicates the degree to which poor HHs are unable to utilize project-supported urban services due to economic restrictions. Affordability data and perspectives offered by other non-poor residents support the design of pro-poor measures such as low interest loans, long repayment time loans, outright grants, etc. The issue of costly connection expenses is recognized by householders.

The FGD concerning affordability engaged all participants, of all income groups. The reported responses therefore include participant thoughts about the relative merit of each service (wastewater, water supply, electricity, waste collection) and the costs of each relative to the income of the participant. Perceptions of the need to support poor HHs to access services are also included. Therefore, the affordability FG discussions as reported are not only about social inclusion of the poor.

In July 2013 the Public Perception Survey was completed with approximately 40 private sector enterprises in each city (total 80) and 60 focus group participants (approximately 120 participants). The results of this survey have been included in this report. Two additional studies completed by other research teams from the Quang Nam Water Supply Company and the World Bank Coastal Cities project in Dong Hoi have also been referenced in this report, due to their relevant findings on willingness to connect and affordability data for wastewater system connections in Dong Hoi and water service connection in Hoi An. These surveys did not focus on willingness to pay but rather on intention to connect to the service, again a determinant of project feasibility and return on investment. The measure was the average price of a connection in the neighbourhood surveyed.

The findings of the Public Perception Survey were utilized in the project economic and financial analysis. This information has also been presented in this report.

Lessons Learned from other projects

A major shortfall in both water and wastewater projects in Vietnam is the lack of connections (particularly in the case of wastewater systems) to the public funded central facilities. Previous experience clearly demonstrates the need to consider a series of information, regulatory, institutional, and pro-poor measures to effectively promote household connections. These may be summarised under a 5 point strategy which has been included in this project design⁶ including: (i) increasing public awareness by launching an Information Education Communication (IEC) campaigns; (ii) issuance, by local authorities, of a decree mandating that all households located within an area served by public sewerage system or drains be connected to the system; (iii) provision of a government subsidy for household connections; (iv) establishment, of a specific house connection group or department, within the utility company; (v) including house connections as an integral part of project formulation for new or existing sanitation projects that will be expanded. (*Section 3.3 Main Report*)

1.3.2 Organization of the Report

The report is comprised of this **Introduction** which describes the project and undertakes due diligence in the review of relevant policies and a sector analysis.

- **Chapters 2 and 3** contain the Social Assessments of project sites for each city. These sections include a demographic and economic description of each project city, including poverty figures, health indicators, information on environmental programs and disaster response measures. Resident perspectives on urban management and climate change arising from the Public Perception Survey are discussed and opinions on factors of success presented. The social assessments for project sites are taken from the material

⁶ World Bank 2012, Vietnam Country Report.

prepared for the 4 Feasibility Studies – 2 for Dong Hoi (wastewater, urban environment and new urban areas) and 2 for Hoi An (Lai Nghi conjunctive use/water source and flood/erosion control/new urban areas).

- **Chapter 4** contains the Stakeholder Analysis, a Stakeholder Participation Plan and a Stakeholder Communication Strategy based on ADB templates for each.
- **Section 5** is the Gender Analysis providing a brief overview of the national gender context, perspectives on climate change and gender and women's roles in decision making. Project proposed gender actions are described and presented in the *Gender Action Plan*.

2. Social Assessments of Dong Hoi

Dong Hoi City is a Class III City with a population of 113,772, targeting Class II City status (population over 200,000) in 2015 or shortly thereafter. It is the administrative capital of Quang Binh Province and is a major economic and tourism centre in the northern central region of Vietnam. The city is located in a narrow coastal strip 40 km from the Laos border and close to major future transportation and other major infrastructure developments. These include the East/West road corridor linking Vietnam, Laos and Thailand; the proposed Indochina railway linking China and Thailand via Vietnam; the new sea ports at Song Gianh and Hon La to the north of Dong Hoi the new 2,400 MW thermal power station in Quang Binh; opening of PetroVietnam office in Dong Hoi and the possibility of oil exploration; potential development of large limestone reserves for construction, and proximity to the large economic zone 100km north in Ha Tinh province.

Dong Hoi City is also an important tourism centre with many kilometres of beaches, significant cultural heritage and most importantly the National Garden of PhongNha - Ke Bang Caves, listed by UNESCO as World Natural Heritage in 2003.

During the American war, Dong Hoi City was heavily bombed and almost all the infrastructure destroyed. After the war, reconstruction work was slow, mostly due to financial constraints. As a consequence, the infrastructure of Quang Binh in general and Dong Hoi City in particular has not been developed comprehensively. Furthermore, Dong Hoi City is affected by severe weather conditions such as floods and droughts, high tides and coastal erosion and is vulnerable to climate change.

2.1 Socio-economic Profile of Dong Hoi

Dong Hoi city's area is 155.71 km² (60.12 sq mi) with a population of 113,772(2011). The urban area is 55.47 km² with an urban population of 71,620 (2009). The rural population represents 32.4% of the total (2011). There are a total of 31,384 HHs, of which 2.05% (636 HHs) are considered poor. The city is served by National Highway 1A, the coastal railway and an international airport. Dong Hoi is comprised of 10 Wards (Bac Ly, BacNghia, Dong My, Dong Phu, Dong Son, DucNinh Dong, HaiDinh, HaiThanh, Nam Ly and PhuHai) and 6 Communes (BaoNinh, DucNinh, LocNinh, NghiaNinh, QuangPhu and ThuanDuc).

Dong Hoi has a 12-km-long coastline with white sand beaches and is the closest city to PhongNha-Ke Bang National Park, a World Natural Heritage Site located 50 km north of the city. The city has diverse topographical and geological features, including hilly, mountainous, coastal plains and coastal sand dunes. Livelihoods include: agriculture, forestry, farming in the hill areas where the soil is not very fertile and subject to continuous erosion due to its slope of 7 - 10%. Less hilly areas support industry, handicraft production, trading with a small percentage of

farming. Most of the city's commercial, administrative and main streets are concentrated in this area. Coastal sand dunes are located to the east of the city, with an area of 21.98 km², making up 14.3% of the total.

Fishing is an important economic contributor, with agriculture and forestry making up 4.4% of GDP. The GDP contribution of industry has been steadily increasing, representing 42.4% of GDP, second only to services at 53.3% of GDP. Two industrial parks (Northwest Dong Hoi Industrial Park and Hon La Industrial Park) are under construction and partially available now to investors. The city achieved an average economic growth rate of 12.5% during 2001-2005 period. GDP per capita in 2011 was VND25.4mill. **Tables 1,2 and 3** present the demographic and economic figures for Dong Hoi.

Table 1: Dong Hoi Demographic and Economic Summary

	Dong Hoi Demographics and Economics		2011
		Unit	
1	Wards	No	10
	Communes		6
2	Total Households(HH)	HH	31,384
3	Total Population	Persons	113,772
4	Rural Population	%	32.4
5	Female Population	%	50.07
6	HH size	Persons	3.6
7	Land Area	Km2	155.7
8	Population density per Sq Km	Persons	725
9	Poor HHs	%	2.05
10	Agriculture land	ha	2,780.6
11	Water Surface	ha	876.41
12	Residential Land	ha	511.55
13	Wild and dedicated land	ha	685.35

Source: Dong Hoi Yearbook, 2011

Table 2: Gross Domestic Product (GDP) Of Dong Hoi City from 2007-2011

Items	2007	2008	2009	2010	2011
1. Total GDP (Billion VND fixed price)	969.2	1052.9	1289.05	1484.1	1802.3
2. Structure of GDP(%)	100	100	100	100	100
Agriculture, forestry and fishery (%)	7.1	6.5	5.8	5.1	4.4
Industry and construction (%)	40.4	40.9	41.4	41.9	42.4

Service (%)	52.5	52.7	52.9	53.1	53.3
3. GDP of each sector (billion VND fixed price)					
Agriculture, forestry and fishery	69.3	68.2	74.8	75.7	79.3
Industry and construction	392.0	430.9	533.7	621.8	764.2
Service	508.3	554.6	681.9	788.1	960.7
Population of Dong Hoi city	108,419	110,253	110,821	112,517	112,865
GDP/person (Million VND/person)	8.9	9.5	11.6	13.2	16.0
In current price					
1. Total GDP (Billion VND)	1,455	1,599	2,133	2,538	2,868
2. GDP of each sector (billion VND)					
Agriculture, forestry and fishery	104.0	103.5	123.7	129.4	126.2
Industry and construction	588.5	654.3	883.0	1063.3	1216.0
Service	763.1	842.1	1128.3	1347.5	1528.6
3. GDP/person (Million VND/person)	13.4	14.5	19.2	22.6	25.4

Source: Master plan of Dong Hoi infrastructure development

Table 3: Agriculture and Fisheries Production

	Unit	2011	2012
a. Planted area of main annual crops:	ha	2,583	2,416
Food crops	ha	2,031	1,904
b. Production of cereals	Tons	10,956	10,581
c. Breeding production	Units		
- Chicken	1000 units	96,3	97,9
o Buffalo	Units	414	400
o Cows		2,103	1,650
o Pigs		22,516	22,853
c. Fishery production (??)	tons	8,933	9,409

Source: Dong Hoi Year book 2011, 2012

2.1.1 Poverty Level in Dong Hoi

Females make up over half of the entire population of 113,772 in Dong Hoi. In 2011 the incidence of HH poverty was 2.05%, ranging from a high of 4.35% in NghiaNinh commune to a low of 0% in HaiDinh and Dong My Wards. Figures provided by the city Dept of Labour, Invalids and Social Affairs indicated that 51.8% or 330 HHs were female-headed HHs. In 2012 the incidence of poverty had decreased slightly to 1.72% of all HHs. 59.1% of all poor HHs or 316 HHs were headed by women. The absolute number of poor female-headed households decreased, but the percentage of these HHs in relation to the total poor HHs increased. These figures are shown in **Table 4 and 5**.

Table 4: Dong Hoi Statistics on Population and Gender

	Population		Total # of HHs		Female population	
	2011	2012	2011	2012	2011	2012
Total	113,772	113,885	31,384	31,843	56,968	57,044
HaiThanh Ward	5,351	5,382	1,325	1,350	2,679	2,692
Dong phuWard	9,816	9,867	2,921	3,005	4,915	4,937
Bac Ly Ward	17,123	17,085	5,366	5,441	8,574	8,553
Dong My Ward	2,883	2,865	742	753	1,418	1,443
Nam Ly Ward	13,843	13,874	4,178	4,208	6,932	6,942
HaiDinhWard	3,616	3,653	979	987	1,811	1,827
Dong Son Ward	8,428	8,496	2,499	2,514	4,220	4,521
PhuHai Ward	3,603	3,671	974	994	1,804	1,836
BacNghia Ward	7,313	7,371	2,133	2,208	3,662	3,688
DucNinh Dong Ward	5,024	5,046	1,224	1,232	2,517	2,533
QuangPhuCommun	3,060	3,038	753	778	1,532	1,525
LocNinh Commune	8,316	8,215	2,132	2,173	4,164	4,124
BaoNinhComm	9,108	9,015	2,089	2,113	4,560	4,526
NghiaNinhComm	4,697	4,652	1,148	1,161	2,352	2,336
ThuanDucComm	4,003	4,016	1,067	1,082	2,004	2,016
DucNinh Commune	7,638	7,621	1,854	1,874	3,824	3,825

Source: Dong Hoi Yearbook 2011 and 2012

Table 5: Poverty Rate by Commune/Ward and HH Characteristics

Location	Number of Poor HHs							
	Poor HHs of 2011		In Which: HH heads are women		Poor HHs of 2012		In Which: HH heads are women	
	No	% of pop	No	% of poor	No	% of pop	No	% of poor HHs

				HHs				
Total	636	2,05	330	51,8	535	1,72	316	59,1
HaiThanh ward	40	2,53	17	42,5	30	2,27	10	33,3
Dong phu ward	22	0,81	10	45,4	17	0,81	11	64,7
Bac Ly ward	33	0,86	13	39,4	33	0,82	17	51,5
Dong My ward	-	0,00	-	-	-	0	-	-
Nam Ly ward	48	1,60	30	62,5	49	1,35	29	59,2
HaiDinh ward	-	0,00	-	-	-	-	-	-
Dong Son ward	74	3,00	44	59,4	66	1,92	37	56,1
PhuHai ward	19	2,05	7	36,8	19	1,62	11	57,9
BacNghia ward	86	3,21	43	50,0	55	2,7	38	69,1
DucNinh Dong ward	30	1,91	17	56,6	21	1,3	11	52,4
QuangPhuComm	31	4,12	8	25,8	30	3,21	18	60,0
LocNinhComm	62	2,46	29	46,7	47	1,87	31	65,9
BaoNinhComm	45	1,62	26	57,8	33	1,21	20	60,6
NghiaNinhComm	47	4,35	30	63,8	47	4,55	30	68,3
ThuanDucComm	26	1,68	12	46,1	16	1,34	11	68,7
DucNinhComm	73	4,17	44	60,3	72	3,43	42	58,3

Source: The Dong Hoi Department of Labour, Invalids and Social Affairs

2.1.2 Health Indicators

The population has access to a range of health care facilities, including hospitals, health care stations, nursing centers, etc. In 2012 there were 349 doctors, representing a small increase over the number in 2011. The number of nurses increased by almost one-third during the same time. These figures are shown in **Table 6**.

Table 6: Health Indicators

	Indicators	2011	2012	2012/2011(%)
I.	Health facilities	30	30	100,0
1.	Hospitals	3	3	100,0
2.	Health care base station	16	16	100,0
3.	Nursing centers and rehabilitation	10	10	100,0
4.	Epidemic prevention team	1	1	100,0

5.	Total number of patient beds	881	986	119,2
II	Health care employees			
6.	Total Health care employees	1017	1116	109,7
7.	In which: Doctors	343	349	101,7
8.	Nurse	350	465	132,8
9.	Another staff	324	302	93,2

Water Borne Diseases

Water borne diseases are of particular interest due to their association with negative water quality exacerbated by climate change impacts. **Table 7** shows the rates of dysentery, diarrhea and dengue fever for 2011 and 2012.

Table 7: Water Borne/related Diseases

Disease type	2011	2012	2012/2011(%)	Average
Dysentery	261	189	72,41	228
Diarrhea	394	672	92,55	497
Dengue	14	10	71,4	66
Total illness	1063	1178	110,8	1734
Rate of illness	0.942%	1.041%		1.538%

Source:Prevention Medical Center of Dong Hoi city September, 2013

Drug Use and HIV/AIDS

There has been an increase in drug users between 2011 and 2012. No further information about remedial actions was made available. Figures for HIV/AIDs infection rates were also not available.⁷

Table 8: Drug Use in Dong Hoi

		person	2011	2012	
1.	Drug users		550	680	123,6

Source:Prevention Medical Center of Dong Hoi city September, 2013

⁷ The PPTA team was unable to meet with appropriate authorities during June and July. An attempt was made to collect the data in Sept. 2013 but this was only partially successful. Missing data for a longer time series should be obtained during detailed design work

2.1.3 Environment Programs in Dong Hoi

The Dong Hoi City Women's Union has been pursuing Environmental protection as a regular activity within its 5 Year Plan. The objective of the WU environmental awareness campaigns is education leading to behavioural change with protects the environment. Communication activities vary depending on the target group. A WU program encourages women in communes to manage certain streets, protecting the trees planted by the city government and planting trees themselves. WU programs have also focused on minimizing the number of plastic bags used. In the four rural communes WU representatives have formed teams to gather the uncollected garbage, bringing it to collection points for the city garbage service. The WU has also piloted a model for home and community beautification called the *Green Clean and Beautiful* model. Each branch decides on their own model and its characteristics. The intention is to improve the houses and surrounding areas, promoting clean kitchens and streets.

One of the important WU projects was involvement with WB funded project sanitation. The WU provided loans to poor households to newly construct or repair their toilets. Reimbursement was paid into a revolving fund with a total allocation of VND4.2bill. From the perspective of the WU, the loan program was ended prematurely as they were requested to repay the revolving loan fund. Loans had been provided to 2800 HHs, but the demand was from 10,000 HHs. The WB project itself benefited about 5 urban wards but the WU felt it was important to distribute project benefits to poor communes where homes had no bathroom and no toilet. Due to the urgent needs, the WU mobilized women to build 3 public sanitation facilities – 117 HHs were involved in building these facilities.

2.2 Resident Perspectives on Urban Management and Climate Change

Perspectives and opinions of residents were gathered through a Public Perception Survey initiated through the PPTA. The 6 wards/communes selected for study are those where proposed project components will be implemented. These include BaoNinh commune and five wards namely PhuHai, Dong Phu, DucNinh Dong, Nam Ly and Bac Ly. Among these communes/wards, only residents in Dong Phu ward are connected to the wastewater collection service. The focus group participants were farmers, fishermen, blue-collar workers and retired people from primarily average income HHs, the predominant income level in Dong Hoi.

2.2.1 Urbanization and Climate Change - Demands on City Management

Informants in DucNinh Dong, PhuHai, BaoNinh stated that urbanization and climate change were having both a positive and a negative impact on their lives. In a positive sense, urbanization has improved the surroundings in Dong Hoi city and rural villages. For those that have affected by land acquisition, they have used the financial compensation received to access new opportunities in business and also to improve their houses to withstand typhoons and floods.

On the negative side, the uneven development of urban infrastructure such as roads, drainage, water supply system, etc. affects local residents. Some rice fields now flood because drainage has been cut off by roads built for new residential areas. This is also thought to create a perfect environment for field pests such as mice, snails and grasshoppers to multiply, affecting crop production. In many cases households have suffered due to loss of their traditional farming livelihoods and being unable to find other work. The wastewater discharge from factories has had a negative impact on the water quality of the aquaculture ponds, further damaging agricultural livelihoods. On the BaoNinh peninsula, the destruction of the willow forests has resulted in increased high temperatures for residents during the hot season.

These impacts have increased the pressure on the government and local people for better urban management and adaptation to climate change.

2.2.2 Satisfaction with Government Services

All six commune/wards are connected to electricity, clean water and garbage collections. Only two wards i.e. Dong Phu and Bac Ly which are located in the centre of Dong Hoi City are connected to waste treatment system of the city. Participants indicated that they are generally happy with the service received from the electrical and water supply companies, but less happy with the waste collection service of the town. They also expressed concern about the cost for each of these services, feeling in some cases that the service was expensive and the costs of installation for water and wastewater almost prohibitive.

Participants were also satisfied with the government disaster response measures and the organizational structure through Storm Control Steering Boards. The assistance from these Boards is considered useful and timely. **Table 9** presents the participant responses concerning satisfaction with government services.

Table 9: Satisfaction with Government Services

Service	Availability
Electricity	<ul style="list-style-type: none"> national grid system is connected to all 6 wards/communes and 100% of surveyed households use the power provided by QuangBinh Power Company. Electricity price for domestic use is under the regulation of Ministry of Industry and Trade in 2012⁸ with a progressive increase in the price of kWh used. Participants are happy with the service of Electricity Company to clients. However they complained about the price of electricity for domestic use and production. According to them, electricity is too expensive and price continuously increases every year. The second complaint is that the government and power company don't pay much attention to road lighting system. There are many road don't have road light system and/or off regularly. Residents in many hamlets have to install road light system and pay from their own pocket. In fact with payment from household for electricity use, the government and Power Company should be responsible to supply electric road lighting system.
Water supply	<ul style="list-style-type: none"> Water supply system has connected to all surveyed wards. However, it has not been reached to all hamlets. The level of household's connection is different. 100% households in Dong Phu, DucNinh Dong and PhuHai wards connect to clean water supply. About 75% households are connecting water supply in Bac Ly and Nam Ly wards. Respondents in BaoNinh said that water supply have not been reached to their village. Users are happy with quality of water supply. Another reason is that local people are not willing to use tap water due to cost constraints. In areas that have underground water, local people there tend to use that water resource to reduce costs. The current unit price 5.800VND/m³ water is rather expensive according to respondents of DucNinh Dong. Also there is issue that

⁸ Circular No. 38/2012/TT-BCT dated 20/12/2012 of Ministry of Industry and Trade

	<p>local people have to invest lots amount of money for equipment and installation of water supply system.</p> <ul style="list-style-type: none"> If they want to connect the service, they have to pay an amount of 7-8 million Dong for pipe installation. It is unaffordable for them. Respondents said that if there is support from government and international funded project, household have to pay only 2-3 million Dong.
Waste collection	<ul style="list-style-type: none"> All surveyed sites are connected to garbage collection. Each households pay monthly at VND23,000 for this service. According to informants, this price is higher than other cities, for example Hue and Da Lat. The service is not value to the money they have paid. Workers are not accountable to their job. Lack of garbage entrepôt and lack of garbage bins in each hamlet. Respondents in BaoNinh observed that garbage in Dong Hoi City has been discharging to Nhat Le River that cause pollution and affect aquaculture livelihood.
Wastewater	<ul style="list-style-type: none"> All households in Dong Hoi City have to pay 8% of value of amount of water use for waste water collection and treatment. However, this service is not connected to all wards. Respondents in BaoNinh ward and DucNinh Dong ward complained that they have to pay this amount of money for one year but actually they have not been connected to this service. Wastewater collection system is connected to Bac Ly and Nam Ly wards however it doesn't work. In Nam Ly the pit system is too small. In some sections in Bac Ly, this system is located higher therefore houses of local residents often get inundated with wastewater when it rains.
Response to natural disasters and post-disaster relief	<ul style="list-style-type: none"> Because Dong Hoi has traditionally been disaster prone, the local government and people are highly conscious of typhoon and flood prevention. In all communes and wards, there are flood and storm control steering boards. Before the natural disaster season, the flood prevention boards of the wards inspect and help the poor and small-sized households protect the houses against the storms. In emergency cases, the boards help to facilitate timely and safe evacuation of the local people. The funding for post-disaster relief comes from the state budget, donations of the people, and humanitarian aid or charity.

2.2.3 Awareness of Climate Change

The Focus Group Discussions found that:

- Participants have basic understanding of greenhouse effects which cause climate change and impacts of climate change such as iceberg melting; extreme weather, sea level raising and threats of high frequency and intensity of natural disasters.
- They believe that climate change is caused by impacts of human being through the development of industrialization and daily activities.
- According to participants, climate change has impacted QuangBinh province. Climate in QuangBinh has changed and weather becomes unpredictable.

- Most participants know about climate change from environmental and news programs on television. Newspaper is the second major channel that people get information about climate change.

2.2.4 Impacts of Climate Change

Signs of the impacts of Climate Change in QuangBinh include:

- The dry season in QuangBinh is shorter. This year it has sometimes rained in summer while the year before there was a great deal of rain in the summer.
- The southwest hot monsoon which usually occurs every summer did not occur this year. However, weather is changeable and more extreme. The temperature is very high some times reaching 40oC, and very cold in winter. Rainfall level is much lower than before. It rains less in winter season but rains more in summer than before.
- Annual typhoon seems to occur earlier than before. Floods do not follow periodic practice and become more destructive. Participants state that deforestation has made the situation worse, with flash floods and destruction of underground water sources causing drought.

The climate change impacts have resulted in lower economic returns on labour and investments, an increased cost of living, increased salinity from salt water intrusion, more diseases in cattle and poultry and other negative effects on other livelihoods such as the fishery and aquaculture. Respondents link climate change impacts to impaired health for their family members. **Table 10** provides details on these impacts.

Table 10: Impacts of Climate Change on Residents

<i>Lower economic returns on labour and investment</i>	<ul style="list-style-type: none"> • <i>Agriculture production:</i> Farmers in Dong Hoi conduct two rice crops per year. These include winter –summer and Summer-Autumn Crops. Traditionally, they plant the first crop in early December after flooding season and harvest this crop in April next year. The second crop is planted in May and harvested in September before flooding season coming in. This production calendar is being affected by climate change. In recent years, hot weather that come earlier in March affect the growth of rice of the Winter-Summer crop and result in low yield. The summer –autumn crop is also vulnerable. Heavy rains which sometime occur suddenly in August and September have affected the crop badly. In 2010, rice field which was going to be harvested was totally destroyed because of heavy rain. Prolong and early rainfall in 2011 also affected the crop. Farmers could not dry the rice that had been harvested. Because of wet weather, paddy grain became moldy and damaged.
<i>Increased household cost of living</i>	<ul style="list-style-type: none"> • Climate change contributes to increasing costs for living. Respondents said that their family has to pay more for electricity and medical expenses. Also because of continued increasing costs of electricity and fuel, costs for food and other items also increase accordingly. Lives of farmers become more hardship since their income is not stable due to the weather.
<i>Increased salinity</i>	<ul style="list-style-type: none"> • Residents in PhuHai ward observed that salt water intrusion affected rice fields and affect the growth of rice. Cultivation of vegetable and other grains are also affected by changeable weather.
<i>Diseases in</i>	<ul style="list-style-type: none"> • Extreme weather also affects health of livestock. There has been high prevalence of epidemics on livestock such as “Tai xanh” and

<i>cattle and poultry</i>	“tuuhuyettrung” in pigs, “Bird flu” on chicken. Sudden cold weather in Jan 2008, 2011 killed a large quantity of buffalo and cows.
<i>Effects on the fishery</i>	<ul style="list-style-type: none"> • Flood and typhoon cause serious erosion in beach areas in BaoNinh and PhuHai. According to observation of residents in BaoNinh commune, there is issue of sand strengthening in the sea mouth that make difficult for boats and ships transport. • The issue of early typhoon coming and unpredictable cause difficulty for fishermen to plan their work. • Fishermen also shared that fishing yield of aqua products is reducing significantly. Fishermen have to work harder to earn for living. Before they went off shore for about 30 sea miles to catch fish, now they have to go further at 70-80 sea miles.
<i>Effects on aquaculture</i>	<ul style="list-style-type: none"> • Aquaculture based livelihood is also affected because pollution of water resource and environment. Residents in Dong Phu, PhuHai wards said that ten year ago, many farmers become rich because of aqua cultivation. In recent years, this livelihood is being bankrupt. • Polluted water and changeable weather killed cultivated fish and shrimp massively. According to farmers, impacts of solid waste that have been discharged to river, lakes and bad drainage cause water pollution in shrimp ponds.
<i>Impaired Health</i>	<ul style="list-style-type: none"> • Changeable and extreme weather affect health of people. Children and old people are impacted most as their resistance to weather and disease are lower than other age groups. • Common diseases (flu, cold, coughs...) that cause by weather have increased. • Also there are high prevalence of diarrhea, scarlet fever and dengue fever in summer time. • Common illness at old people that likely cause by extreme weather includes high blood pressure, lung infection and stroke.

Awareness of Dong Hoi Environmental Initiatives

- Generally, participants of most FGD said that they don't know any climate change initiatives launched by the government.
- Overall the environmental initiatives in Dong Hoi City have been based on a single event. It is essential to have more actions that lead to positive change in behavior of local residents toward environmental and natural resource protection.
- Focus Group participants were aware of several environmental programs that have been conducted by the Women's Union: there was a World Bank funded project that provided loan for women to build or upgrade sanitary facilities. This project also trained women on environmental protection and waste classification.
- Compared to other groups, women are more active in environmental issues. Women's Union in Dong Hoi launched programs on “self managed street” that local women is responsible to keep all streets in their hamlet clean.
- Women and youth participated in environmental events such as “Earth hour” and “environmental day”.

Opinions about Project

Informants generally support government initiatives in social economic development in general and urban development in particular. There are positive outcomes in reducing poverty and

improve access of local people to basic services such as education, health care, water and electricity supplies as well as improved access to other urban services. Informants propose government to pay more attention to support livelihood change in new urban development areas and issues related to resettlement.

Concerning the potential ADB funded Urban and Climate Change Response, respondents said that proposed project components for Dong Hoi City are reasonable. They propose that the project should contribute to improve drainage system of the city to avoid inundation. Also, stronger cooperation among urban development actors and transparency should be in place for better urban governance.

Constraints or success factors for climate change programs

The only success factor perceived by local residents is that they strongly believe in the government and they are ready to support government to implement climate change initiatives. Perceived constraints for implementing climate change programs include:

- Low levels of awareness of some segments of the business sector and local residents about environmental and resource protection;
- Lack of knowledge and skills among government staff and local residents about climate change; and
- Lack of financial resource to invest on climate change mitigation programs.

In respondents' opinions, effective implementation of climate change initiatives should combine all aspect of awareness raising, knowledge and know how, participation and financing mechanisms for sustainability.

2.3 Project Site Social Assessments

2.3.1 Wastewater Dong Hoi

Social assessments were conducted in Dong Hoi concerning the public perception of government service efficiency and effectiveness with a particular focus on an improved wastewater system and willingness to pay/affordability of such a system. 40 businesses and 66 residents in project related wards in Dong Hoi were surveyed for their opinions, experience and perspectives. In addition, the results of a house connection and tertiary sewer study conducted for the *Vietnam Coastal Cities Environmental Sanitation Project (CCESP)* supported by the World Bank have also provided willingness to connect and affordability data. This CCESP study surveyed 247 households in Dong Hoi in low-income, middle-income and new development neighbourhoods to determine costs and affordability of connection to the wastewater system.

Perspectives from the Business Community

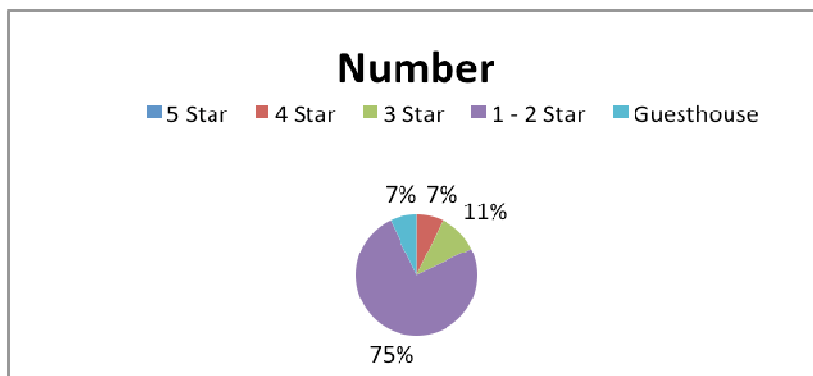
An overview of the business sector in Dong Hoi shows that there is high concentration of micro, small and medium enterprises. In the tourism sector, domestic tourism is stronger than international tourism, where major customers are budget tourists. Currently, medium and high end markets account for a small share of the tourism activities in Dong Hoi. Business survey respondents were selected based on a list of enterprises including tourism, restaurants, handicraft/garment workshops, etc. provided by the Bureau of Economics of Dong Hoi City and the Department of Culture, Sport and Tourism. **Table 11** indicates the types of businesses who contributed to the survey.

Table 11: Number of businesses surveyed by type of business service

No.	Type of business	Quantity	Percentage
1	Accommodation (resorts and hotels)	28	70.00%
2	Handicraft and fine arts	3	7.50%
3	Restaurant and café'	3	7.50%
4	Others (furniture making, fish processing plants, ice producing factory...)	6	15.00%
5	Total number of businesses	40	100.00%

Among the 28 accommodation business participating in this survey, there are two four star resorts; three three star hotels/ resorts; 21 hotels classified as 1-2 stars and two guesthouses (See **Figure 1**).

Figure 1: Percentage of surveyed hotels by their classification



In Dong Hoi, accommodation is the core business of all hotels and resorts. In addition, most of these provide transportation service and cooperate with tour operators to provide local excursions, such as tours to PhongNhaKe Bang National Park. Hotels rated at 3 stars and above often have large restaurants and bars that provide a range of food and beverages for customers. These hotels also provide supplementary services such as spas, saunas, hairdressers and kiosks selling handicraft/souvenir products. The average room occupancy rate is about 40-45% per year. The high tourism season in Dong Hoi is from May-August. Key markets are Vietnamese tourists from Northern Vietnam who travel in family or group tours. Manufacturing/processing businesses in PhuHai ward are mainly small businesses that produce furniture and handicrafts. Businesses in BaoNinh commune are the ice production factory and the fish processing plant.

Perspectives on waste water system. 23% of businesses report that they are currently connected to waste water collection through the R3 system of Dong Hoi, while 77% are not connected. The R3 system is only functioning in the centre of the city, in Dong Phu ward. Respondents said that the water treatment plant of the city has not been in service. The three and four star hotels/resorts surveyed have built their own wastewater treatment systems. The wastewater of smaller hotels and businesses goes to their sewerage system and then connects to R3 or the sewerage system of the city. There are several factories that discharge their wastewater into the environment. Respondents report being dissatisfied with the government because their businesses have been paying for wastewater treatment service for almost three years while there is no proper wastewater treatment in place.

Willingness to connect. Businesses not connected to the municipal water supply want to connect to the system. 84% of businesses who have not connected to the service of the city want to connect to the waste treatment system while the remaining 16% are not interested in connecting because they have already constructed wastewater treatment facilities and according to them these facilities are functioning well. **Table 12** shows the business demand for public services.

Table 12: Business demand for public services

Needs of service	Clean Water		Wastewater		Solid waste	
	Number	%	Number	%	Number	%
Businesses want to use	1	100%	26	83.87	1	100
Businesses do not want to use	0		5	16.13		

Willingness to pay. 75% of those interviewed said they would be willing to pay more if public services are improved while 2.5% would not pay more (See **Table 3**).

Wastewater System - Economic Analysis, Main Report

Waste water tariff projections indicate that QB PPC will need to subsidize the O&M and debt service costs at an increasing rate from 2014. To achieve O&M cost recovery, average waste water tariffs are estimated to need to be increased to VND 3013/m³ in 2014, with domestic tariffs increasing to VND 2191/m³. For O&M and depreciation cost recovery these figures are VND 5615/m³ and VND 4082/m³ respectively. These were considered unaffordable for domestic users and more moderate increases in the early years of implementation have been proposed.

Affordability analysis was conducted to determine if the proposed waste water tariffs are affordable. The assumed increase in waste water tariff to VND 876/m³ from 2014, would result in estimated combined water and waste water bill of about VND 115000/month for an average family, equivalent to about 2.8% of monthly household income. Since this value is below the international norm of 4%, they are considered to be affordable.

Table 13: Existing wastewater tariffs in Dong Hoi

Items	Unit	2012	2013
Wastewater tariff			
Domestic	VND/m3	520	830
School, Hospital, Public	VND/m3	1600	2500
Administration and Military	VND/m3	2200	3500
Small Manufacture	VND/m3	2400	3800
Service, Business	VND/m3	3000	4800

Table 14: Willingness to pay more

Willingness to pay more	Number	Percentage
Number of businesses willing to pay more than current tariff	30	75.0%
Number of businesses not willing to pay more than current tariff	1	2.5%
No comments	9	22.5%

Survey of Residents

In addition to the business survey, focus group discussions for the Public Perception Survey were held with residents of Dong Hoi. The selection of 6 wards/communes represents wards/communes where proposed project components will be implemented. These include BaoNinh commune and five wards namely PhuHai, Dong Phu, DucNinh Dong, Nam Ly and Bac Ly. Urbanization in these sites has been rapidly occurring. Urbanization, on the one hand, has contributed to improve the image of Dong Hoi City and provide opportunities for local people to develop service-based businesses or obtain jobs and employment in the service and tourism sector. However, on the other hand, this process reduces agricultural lands and requires a shift from traditional agriculture-based livelihoods towards trade and services. Respondents felt that if not well managed, urbanization will negatively affect the livelihoods of farmers and their lifestyle.

Wastewater System. All households in Dong Hoi City pay 8% of the value of water use for wastewater collection and treatment fees. However, this service is not connected to all wards. The residents in the one ward with wastewater connection service - Dong Phu Ward - report being happy with the wastewater system. Respondents in BaoNinh ward and DucNinh Dong ward complained that they have paid fees for one year but have not been connected to this service. Households have to manage their own wastewater. The wastewater collection system is connected to Bac Ly and Nam Ly wards however it doesn't work. In some sections in Bac Ly, this system is located on higher ground than the houses of local residents and causes flooding when it rains.

Perspectives on project. Respondents fully agreed with the components of the project on improvement of urban environment and climate change impact mitigation (TA 8171-VIE) proposed for Dong Hoi city. They hoped that the urban environmental services such as water supply, garbage pick-up, and wastewater treatment would be increasingly improved to meet their demands and provide better services to the people. However, due to difficult economic conditions, the majority of local people have low and average incomes, so they do not fully support an increase for urban environmental services such as the costs of electricity and water,

and waste collection (i.e. garbage) fees. However, they are willing to pay more for improving wastewater collection and treatment system as this issue is seriously affecting water resources and the urban environment.

Among basic environmental services, local people suggest the following list of priorities:

- i. Develop waste water treatment system;
- ii. Strengthen capacity of clean water supply system and reduce costs for installation of water supply at the household level;
- iii. Improve garbage collection; and
- iv. Develop road lighting system

Results of the “Investigation, design, and cost estimation for house connections and tertiary sewers in Dong Hoi city under Coastal Cities Environmental Sanitation Project”⁹ completed in December 2012.

In Vietnamese cities, about 80% of urban households use septic toilets, often with improper handling of waste. Urban sanitation remains one of the top priorities in the urban sector. The World Bank has been supporting the development of sanitation systems in selected cities, including funding for a number of waste treatment plants in the coastal provinces bordering Ha Long Bay World Heritage Site, as well as in the large urban centers of Da Nang and HaiPhong. In order to contribute to development of modern infrastructure, improve the urban landscape and the sustainable development of cities, the Vietnamese Government has called on international donors to support implementation of environmental sanitation projects. One of these projects is the *Vietnam Coastal Cities Environmental Sanitation Project* (CCESP) supported by the World Bank.

The CCESP is intended to provide sewer systems and wastewater treatment plants (WWTP) in three cities i.e. NhaTrang, QuyNhon and Dong Hoi. This study was undertaken in Dong Hoi to examine feasible capital programs for house connections and tertiary sewers in order to benefit the maximum number of people and to increase the efficiency and sustainability of the project in the city.

The household survey in Dong Hoi covered 247 households using in-depth interviews. Households were located in:

1. low-income areas of the city
2. middle-high income city centre wards including commercial areas
3. predominantly new development (e.g. in the last 10 years)

Willingness to Pay. The survey showed that the majority of people accept that they will have to pay for a portion of the connection cost. An average of 58% said they would pay up to 20% of the total connection cost. For this lowest payment level, the proportion of people willing to connect is relatively high i.e. 81.4% in the area with low-income residents, 49.6% in center ward with high-income people, 48.9% in new developments.

Another 27% are willing to pay 35% of the average total connection cost. For this medium payment level, the proportion of people who are willing to connect is again relatively high i.e. 18.6% in the area with low-income residents, 28.3% in center ward with high-income people, 34% which have been developed over the past 5-10 years.

⁹ People’s Committee of QuangBinh Province, QuangBinh Environment and Urban Development One-member limited company. Vietnam Coast Cities Environmental Sanitation Project. Dong Hoi City Sub-project. *Investigation, design and cost estimates for house connections and tertiary sewers in Dong Hoi city.*

Only 0.5% of respondents are willing to pay as high as 80% of the total cost. For the highest level of contribution, no one is willing to contribute from the area with low-income residents or the downtown area with high-income residents, but 2.1% in the new development area are willing to pay this amount. According to results from PPTA 8171 survey, the average price for connection ranged from 7 million to 8 million VND. The monthly wastewater disposal fees in Dong Hoi city is 23,000 VND per household.

The fees for wastewater and environmental protection are based on Decree 88/2007/ND-CP on urban drainage system and industrial zone drainage system. Article 45, Decree 88/2007 states that exceptions apply for people who cannot afford the fees if paying fees has serious impacts on their income.

Decision No 19/2010/QĐ-UBND Quang Binh dated 20/12/2010 set the fee for wastewater disposal calculated 8% per cubic meter used clean water not including VAT. At implementing stage, stakeholders should determine number of near poor and poor households to which these provisions apply.

The in-depth interviews showed that low-income residents are more willing to contribute even if their contribution is less than 20% of the cost whereas those residents from high-income areas are unwilling to contribute but expect to benefit 100% from the state's investment. Although all households who use pipe water have already paid for wastewater disposal (8% of value of water use), the service is not available/workable in some areas. While respondents in Dong Phu ward are happy with the wastewater service, respondents in Bac Ly and Nam Ly are unhappy because they have to pay for the not working system and Bao Ninh and Duc Ninh Dong even not existing wastewater system. Some areas such as Bac Ly due to bad operation of wastewater system, flooding happen all time when it is raining. This become crucial issue and results 80% of respondents agree to pay higher fees for the service if improved (PPTA 8171 survey, appendix 1.c., pp 28,29).

These results are shown in [Table 14](#).

Table 15: % willing to pay connection costs

Willing to pay – at what level	% of respondents	% of total connection costs that HHs are willing to pay
1. The lowest	58%	20%
2. moderate	27%	35%
3. Highest	.5%	80%
4. Unwilling to pay	15%	-
<i>Average percentage of connection cost that HHs are willing to pay</i>		25%

Affordability. Households in low-income neighbourhoods made up 7.1% of survey respondents. These households said that due to their economic circumstances, they would find paying for connection costs difficult. 25% of respondents said they had no funds to pay for sewer connections. After discussions to make people aware of the negative effect of wastewater on environmental health, most people would like to connect with support from the project/Decree 88 provisions (see above).

Social Assessment Summary

Wastewater connection is a priority issue for the businesses and residents of Dong Hoi city. With increased awareness of the health and environmental impacts of untreated wastewater, more residents are anxious to connect to a wastewater system. Some businesses have constructed their own wastewater treatment plants but others are willing to connect when the service becomes available. Affordability of connection is a barrier for some households in lower income areas. Special pro-poor assistance measures will be required for the project to ensure equitable access to project benefits. One of the project outcomes is that the number of households served by improved/new wastewater collection and treatment is increased from 1,721 to 6,356. This will include all poor HHs (out of 535 HHs with 316 Female Headed HHs. See Table 5) and other vulnerable HHs located in the project area. Assessments to determine HHs eligible for support under Decree 88 will be conducted by the PIU.

2.3.2 Dong Hoi/Bao Ninh Climate Change Adaptation Project

A Public Perception Survey and other social investigations were conducted in Dong Hoi to assess business and resident attitudes to, and experience with, natural disasters and government services in all sectors including environmental management. 40 businesses and 66 residents in project related wards in Dong Hoi were surveyed for their opinions, experience and perspectives. The assessment of business engagement in environmental programs, perceptions of public services provides perspectives on business practices likely to occur in new urban areas.

Perspectives from the Business Community

Environmental Programs. Among the 40 surveyed enterprises, 85% engage in environmental conservation programs as part of their business function. Survey results show that all of these businesses take into account the efficiency of electrical use as the cost of electricity is high. Hotels and restaurants implement the following environmental activities:

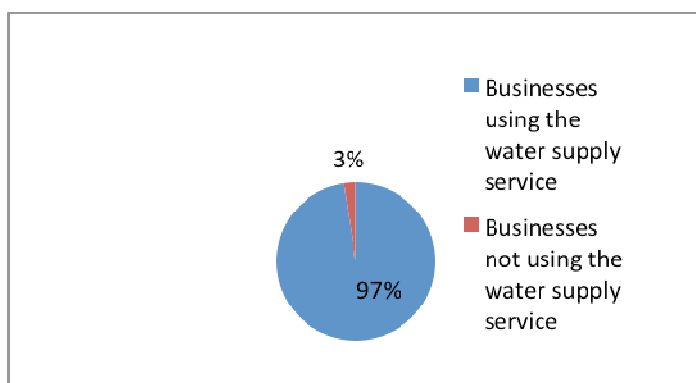
- *Water efficiency:* Enterprise staff is informed of the need to conserve water. Many hotels control the water outflow for showers and the water level of toilet tanks. Hotels also have changed from one flush to two flush button toilets to reduce water use. There is one hotel that reuses grey water from washing vegetables to water plants. There is only one hotel that has placards in the guest rooms providing options on saving water.
- *Electricity efficiency:* These enterprises have a policy on electricity saving and monitor the implementation of this policy by their staff. Solutions for saving energy that have been taken include using compact lights, magnetic keys, turning off lights when there are no guests, replacing old equipment with energy saving ones, etc.
- *Solid waste management:* Garbage is collected by the municipal waste collection service. Most enterprises put all waste types in a bin for disposal. Only a few surveyed enterprises separate waste into three categories such as organic, recyclable and waste for disposal. These enterprises give leftover food to farmers for animal feed and sell recyclables to collectors.

Business Perception of Public Services – Quality, Efficiency and Cost¹⁰

¹⁰ For wastewater perspectives, see FSR Volume 7 Extension of the Wastewater System

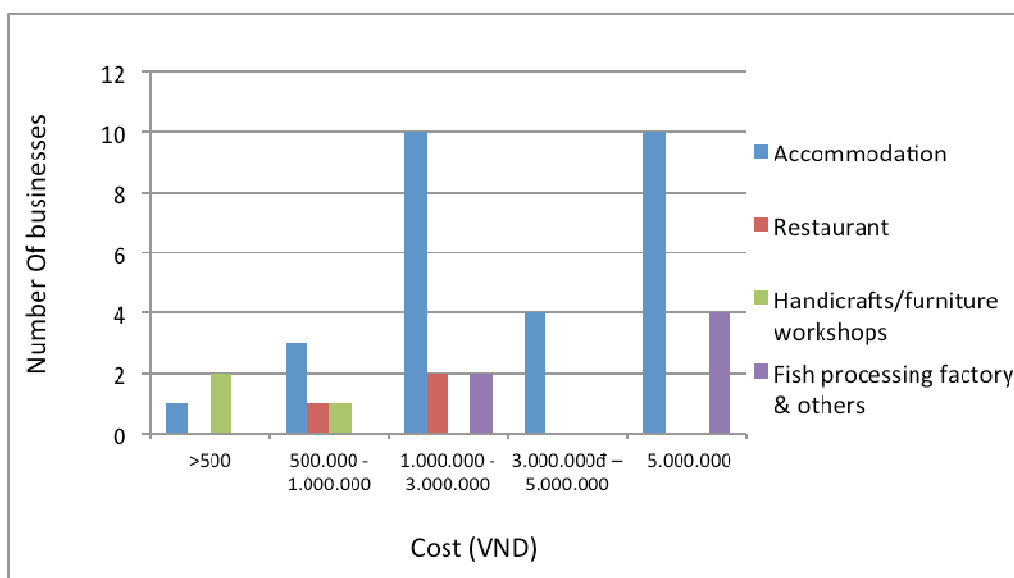
Water Supply. There are 39 enterprises connected to the water supply system. Only one resort in BaoNinh commune does not use the service. This hotel is using underground water. This data is shown in Figure 2.

Figure 2: Percentage of businesses connect to water supply system



The amount of water used by surveyed enterprises depends on the size of business, volume of guests and, for factories, production yield. Figure 3 shows that hotels pay more for water than other types of businesses. Fish processing factories also consume significant amounts of water. Restaurants in Dong Hoi city and handicraft/furniture workshop in PhuHai industrial zone spend less for water than other business groups.

Figure 3: Level of water cost by type of businesses



80% of businesses are very satisfied, satisfied or OK with the water supply system service. 50% of surveyed businesses are dissatisfied with the price of water. In their opinion, the water price applied for service businesses is too high compared to other provinces¹¹. In addition, the fee for wastewater treatment is added automatically to the bill for water supply. This makes the bill more expensive¹². Businesses also have a similar concern with water quality, with 50% expressing dissatisfaction. Respondents reported that at times the water turns red. In summer and sometimes on weekends water supply is not forceful enough. Hotels have to pump water to upper floors. Table 15 indicates the level of satisfaction with the water supply system in Dong Hoi.

Table 16: Level of satisfaction of water supply system

Level of satisfaction	Very satisfied	Satisfied	OK	Dissatisfied	Very Dissatisfied	No comment
Service						
Number	3	15	14	7	0	1
Percentage	7.5%	37.5%	35.0%	17.5%	0.0%	2.5%
Cost						
Number	1	5	13	18	2	1
Percentage	2.5%	12.5%	32.5%	45.0%	5.0%	2.5%
Water quality						
Number	1	5	13	18	2	1
Percentage	2.5%	12.5%	32.5%	45.0%	5.0%	2.5%

Solid Waste Management. 39 of the surveyed businesses are using the solid waste collection service. Only one business in BaoNinh commune does not use this service. This business had connected to garbage collection service previously but the service contract has been terminated and is under negotiation. A Service Contract is signed between the urban environmental service company and the customer and renewed on an annual basis. 15.3% of surveyed businesses are not satisfied with the cost of solid waste collection service (See Table 16). In addition, 36% of them are dissatisfied with the service due to the following reasons:

- Waste is not collected on Sunday. This is not convenient for hotel/resorts as they normally have more guests during the weekend. Consequently, waste of hotels/resort piles up on these days.
- In BaoNinh area, waste is collected every two days, insufficient to meet the demand.
- Not enough rubbish bins are supplied.
- Urban clean-up workers are not committed to providing quality waste removal.

Table 17: Satisfaction with solid waste collection

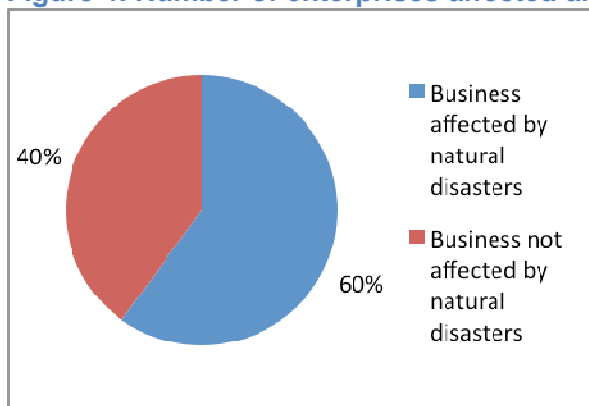
¹¹ According to the decision numbered 01/2012/QĐ-UBND dated 18/01/2012 water price for service sector is VND15,000 per m3, include VAT.

¹² According to the decision numbered 19/2010/QĐ-UBND dated 20/12/2010, fee for wastewater disposal is calculated 8% per m3 of used water without VAT.

Level of satisfaction	Very satisfied	Satisfied	OK	Dissatisfied	Very Dissatisfied
Cost					
Number	2	16	15	5	1
Percentage	5.13	41.03	38.46	12.82	2.56
Service					
Number	1	17	7	13	1
Percentage	2.56	43.59	17.95	33.33	2.56

Impacts of flooding and other natural disasters. Dong Hoi City is located along the coast and therefore is vulnerable to typhoons and other storms. 60% of those surveyed said that they are often affected by natural disasters including flooding, with 78% of affected enterprises reporting that their business premises are hit by disaster once or twice per year, while other said that the frequency is higher (see [Figure 4](#)).

Figure 4: Number of enterprises affected and not affected by natural disasters



Natural disasters affect businesses in several ways. Revenues and profits are reduced, business operations are suspended and in many cases, bookings have been cancelled. Typhoons destroy windows, tiled roofs, infrastructure such as electrical service as well as trees and other plantings. Embankments at beach resorts in the Nhat Le area are eroded and factories in PhuHai area are seriously affected by flooding. In particular, the historic flood in 2010 badly damaged business property. In addition, the poor drainage system causes flooding that also can affect business operations.

Disaster response programs. 55% of surveyed businesses know about disaster mitigation response programs of the local government (See **Table 17**). They acknowledge that the government has made efforts to mitigate impact disaster impacts. For example, building embankments in some sections of Nhat Le Beach to protect land from erosion. They acknowledge the role of the Committee for Flood and Storm Control. This committee inspects the

quality of dams, dyke and embankments, and often requests that businesses be prepared for disaster. Government also launched tree-planting program near the beach to protect the commune.

Table 18: Business's knowledge of government disaster response program

Category	# of businesses	Percentage
Businesses knowing about the programs	22	55.0%
Businesses not knowing about the programs	16	40.0%
No comment	2	5.0%

However, there has been no practical support from local government and authorities to the business sector for disaster response. So far, each business has to prepare and manage disaster preparation and impacts on their own.

Table 18 shows the level of business satisfaction with emergency response work. 62.5% of interviewed business are satisfied (7.5% are very satisfied) with government emergency response work; 10% are not satisfied.

Table 19: Business satisfaction on emergency response work

Scale (1 very low- 5 very high)	1	2	3	4	5	No comments
Number of business	2	2	8	14	3	11
Percentage	5.0%	5.0%	20.0%	35.0%	7.5%	27.5%

Businesses acknowledge what the government has done, but they expect government to do more to better support the business sector in disaster response. One business proposed that the government should have a comprehensive plan of action for disaster response.

Climate Change Fund. The level of interest in supporting a Climate Change Fund through which to implement mitigation measures is varied among surveyed businesses. 82.5% of businesses support this initiative while the remaining 17.5% are not in agreement. Reasons given for not supporting a Climate Change Fund are:

- It is the responsibility of government to deal with climate change response. Businesses already pay fees related for environmental protection. For example fees for electricity and water include funds for forest environment protection;
- Business is already responsible to ensure the safety of their guests and property; and
- Business cannot monitor how the government manages the fund.

Those whom agree to support a Climate Change Fund also proposed that government should have a plan as to how the fund is used and how business and local communities will benefit from this fund. 13 respondents suggested contributing amounts ranging from VND100,000(USD4.5) per year to VND1,000,000(USD47) per year. Thus the mean value of the amount that business will contribute to a Climate Change Fund is VND679,000 (USD34) per year.

Priorities in urban planning. 38% of respondents know government priorities in urban planning while 50% respondents do not. Most respondents support proposed components of the Urban Environment and Climate Change Adaptation project. They also provided the following suggestions:

- The capacity of water supply should be improved but price for water should not be increased as current price is rather high. The price of water in Dong Hoi should be competitive with other cities;
- It is essential to upgrade Nhat Le embankments;
- Beach planning for tourism development should be taken into account. However, access to the beach should also be preserved for local communities, not just allocated to the private sector. Local residents should have the right to access and use the beach.
- Address the lack of recreation places in the city. This deficit results in short stay visitors.

BaoNinh urban area development. Businesses in Dong Hoi said that the development of new resort area will not have a negative impact on their business. For them, development of the new resort area coupled with better marketing efforts will contribute to strengthen Dong Hoi as a beach tourism destination. The more customers get to know about Dong Hoi, the more benefits to tourism enterprises. Large hotels and resorts find it healthy to compete in a vibrant business environment, while small hotels said that the market segments of resorts and small hotels are different.

Perspectives from Residents

The public perceptions survey was conducted in Dong Hoi city in 6 wards/communes where proposed project components will be implemented. These include BaoNinh commune and five wards namely PhuHai, Dong Phu, DucNinh Dong, Nam Ly and Bac Ly. Urbanization in these sites has been occurring rapidly. Urbanization, on the one hand, has contributed to improve the image of Dong Hoi City and provide opportunities for local people to develop service-based businesses or obtain jobs and employment in the service and tourism sector. However, on the other hand, this process reduces agricultural lands and requires a shift from traditional agriculture-based livelihoods towards trade and services. To some extent, if not well managed, urbanization will negatively affect the livelihoods of farmers and their lifestyle

All six selected communes/wards have been connected to public services which include electricity, clean water, and solid waste collection. Among these communes/wards, only residents in Dong Phu ward are connected to the wastewater collection service. Resort and road development on the BaoNinh peninsula destroyed the willow forests, contributing to higher temperatures for residents during the hot season. Wastewater discharge from factories has a negative impact on the quality of water in aquaculture ponds.

Perceptions of climate change and environmental protection programs. 75% of participants said that they don't know of any climate change initiatives launched by the government. The

government has launched other environmental programs such as tree planting and some events based on campaigns such as “World Environment Day”, “Earth Hour”, etc. Discussions with men and women show that women play an important role in environmental protection. Women are regarded as more proactive in taking initiatives to protect environment in their communities and their families. There have been several environmental programs that have been conducted by the Women’s Union. There was a World Bank funded project that provided loans for women to build or upgrade sanitary facilities. This project also trained women on environmental protection and waste classification at household level. The Women’s Union in Dong Hoi launched programs on “self managed street” where local women are responsible to keep all streets in their hamlet clean. Women and youth have participated in environmental events such as “Earth hour” and “Environmental Day”. Overall observations show that environmental initiatives in Dong Hoi City have been event based. It is essential to take more actions that lead to positive change in behavior of local residents toward environmental and natural resource protection.

Measures for climate change adaptation. Given that the weather is becoming more extreme, local residents have made changes to protect their economic production and daily lives. However, according to them, it is hard to find effective measures to protect agriculture production since the weather is irregular. The Department of Agriculture and Rural Development encouraged farmers to use some new rice varieties however these new varieties have not been adapted to the soil and weather in Dong Hoi. Therefore, production has been rather low. In addition, the costs for new varieties are more expensive. Farmers suggested that the government should issue a favorable policy such as a subsidy or reduce costs for input supplies to encourage farmers to cultivate new varieties. In general, residents said that there has been no initiative to respond to climate change developed by the government and local people. [Table 5](#) below presents climate change adaptations that are being undertaken at the household level:

Table 20: Climate change adaptations currently utilized

Purpose	Measures
Adapt to hot weather	<p>The following measures have been taken depending on the economic condition of each family:</p> <ul style="list-style-type: none"> - Build house with eaves to avoid direct sunlight. - Replace iron roofing sheet with tiled roof. Poor families line the underside of the iron roof with cardboard or spongy material. - Plant creepers in front yard and trees to provide heat barrier. - Wear mufflers and long sleeved shirts when going outside. - Equip the house with air conditioners and electric fans. This method increases costs for electricity but to be comfortable in the hot season, most families with sufficient economic means use this method. - Go for a walk along Nhat Le embankment to seek cooler air.
Adapt to typhoon and flood	<ul style="list-style-type: none"> - Build typhoon and flood resistant houses. - For old houses, apply methods to strengthen the house such as cross bracing, higher house foundation, ties for the roof. - Store foods and essential stuff before flood season comes.
Reduce costs and protect health	<ul style="list-style-type: none"> - Women and also men often wear muffler and long sleeved shirt when going out to avoid heat affecting their skin and body. - Walking, jogging or doing exercise along Nhat Le embankment/park in the morning and evening to relax.

	<ul style="list-style-type: none"> - Making local tea from herbs to drink. Informants believe that this tea keeps their body cool and aids in digestion. - Apply basic methods to reduce electricity use such as switch off electrical equipment/light when it is not necessary, regulate air conditioner at 25-26oC; regulate electric fan at level 1 or 2. - Residents are concerned about dangerous food which comes from China or unknown origins, so to protect the health of their family, they now tend to grow vegetables, fruit trees and raise poultry for food.
Adaptations in cultivation and husbandry	<ul style="list-style-type: none"> - Plough deep and rake the field carefully before planting rice, grain or other crops to deter insects, vermin. - Pay more attention to the growth of rice fields and livestock. - Apply new rice variety that can stand cold weather-but result of yield is lower than normal rice seeds. - Clean up animal and poultry cages regularly and keep the animals warm in winter.
Adaptation in aqua culture	<ul style="list-style-type: none"> - Clean up pond carefully before cultivation. - Invest in good drainage system for cultivated pond. - Assess quality of water and salinity regularly
Adaptations in fishing practice	<ul style="list-style-type: none"> - Watching weather forecast regularly - Equip and connect fishing boat with radio, walkie talkie, .v.v - Change or Upgrade to a vessel with higher capacity to be able to go further off shore for fishing.

Concerning the potential ADB funded Urban and Climate Change Response; informants said that proposed project components for Dong Hoi City are reasonable and necessary. They propose that the project should contribute to an improved drainage system in the city to avoid inundation. Also, stronger cooperation among urban development actors and transparency should be in place for better urban governance.

Opinions about a Climate Change Fund. 85% of respondents in Dong Hoi City do not support the idea of developing a Climate Change Fund to support mitigation initiatives. The reasons include that households are already paying into a Flood and Typhoon Prevention Fund. Also, there are so many other funds that households have to pay annually. A few respondents said that it is important to deal with Climate Change and it is essential to have a fund to implement climate adaptation and mitigation initiatives. However, it will be difficult to raise and collect this fund from local residents unless they are fully aware of how the Fund monies will be spent. The government must play an important role to make people understand this fund and issue a policy for collecting for this fund.

2.3.3 Social Assessment Summary

The social impacts of the proposed sub-component are regarded as positive by businesses and residents of Dong Hoi city. Increased environmental management awareness is important to ensure that inclusive development is supported and that benefits accrue equally to all poor and

rich alike. New developments will bring increased income opportunities for those working in the service and hotel industries.

FGDs with six wards/commune about their perceptions on climate change and public services show that residents perceive climate change are having impact negatively on their everyday lives. Except some household based adaptation to this issue, however, there has been almost no program in response to climate change. There has been lack of environmental protection programs in Dong Hoi city to raise awareness and build capacity for local residents and relevant stakeholders in environmental and natural resource protection. Respondents fully agreed with the components of the project on improvement of urban environment and climate change impact mitigation (TA 8171-VIE) proposed for Dong Hoi city. They hoped that the urban environmental services such as water supply, garbage pick-up, and wastewater treatment would be increasingly improved to meet their demands and provide better services to the people. However, due to difficult economic conditions, the majority of local people have low and average incomes, so they do not really support the increase of the urban environmental services such as the prices of electricity and water, and waste collection fee. Also, the current prices are already higher than some other cities. However, they are willing to pay more for improving waste water collection and treatment system as this issue is affecting water resource and urban environment seriously.

3. Hoi An

Hoi An is located on the northern bank of the Thu Bon River in Quang Nam province on the south central coast of Viet Nam. The town is about 50 kilometres north of Tam Ky City (the capital of the province) and about 30 kilometres south of Da Nang City. Situated on the Thu Bon estuary, a network of waterways about 34 kilometres long, Hoi An is close to the ocean and to many beaches and fishing villages, such as An Bang beach, approximately 4 kilometres to the north; PhuocTrach beach, a picturesque beach lined with sheoak trees (*Allocasuarina*) and Cam Thanh village, about 3 kilometres east at the mouth of the Thu Bon River close to the ThuanTinh sand dunes. Off the coast is an archipelago of eight small islands: Lao, Ong, Kho Me, Kho Con, Tai, Dai, La and Mo, known collectively as Cu Lao Cham (Cham Islands). The archipelago has a total area of 15.5 square kilometres, of which 90 percent is forested, seven percent farmed and three percent inhabited (with a population of around 2,800).

Hoi An is recognized as a World Heritage Site by UNESCO. Hoi An Ancient Town is an exceptionally well-preserved example of a South-East Asian trading port dating from the 15th to the 19th century. Hoi An's buildings reflect a mixture of Vietnamese, Chinese, Japanese and French architectural influences. Generations of craftspeople have incorporated this variety of building traditions to form a harmonious combination. The oldest surviving structures date back to the eighteenth century. The most recent heritage buildings were built during the French colonial era. The "Japanese Bridge" (16th-17th century) is a unique covered structure built by the Japanese, the only known covered bridge with a Buddhist pagoda.

Recently, Hoi An has adopted an Eco-city Development Plan and complementary plans such as transportation, construction, and tourism plans. These sustainable development planning initiatives work to shape future investment and development both from public and private entities to maximize economic opportunities.

3.1 Socio-economic Profile

Ho An is comprised of nine wards (Cam An, Cam Chau, Cam Pho, Cam Nam, Cua Dai, Minh An, Son Phong, Tan An and Thanh Ha,) along with four communes (Cam Thanh, Cam Ha, Cam Kim and Tan Hiep) covering both urban and peri-urban areas. The population in 2012 was 92,366 inhabitants, approximately 8000 of whom were agriculturalists, comprised of 22,261 households with an average household size of 3.6 persons. The population is forecast to grow to 111,309 by 2020 and 132, 531 by 2030 at relatively low growth rates¹³. Hoi An encompasses urban and agricultural areas, with over 2 million hectares (ha) out of total of 6 million ha devoted to agricultural production and another .9mill ha defined as cultivated land. Other land uses include forestry, perennial crops and fishponds. These figures are shown in **Table 20 Hoi An Demographic and Economic Summary**

Table 21: Hoi An Demographic and Economic Summary

	Hoi An Demographics and Economics	Unit	2011	2012
I.	Administrative units			
	Wards	No	9	9
	Communes		4	4
	City block		53	53
	Villages		24	24
II	Population and employment			
	Total Households	HH	22.085	22.261
	Total Population	Person	91.620	92.366
	Total female population	Person	46.198	46.532
3	Population density per Sq Km	Persons	1.473	1.491
	Rate of population increase	%	9,11	8,44
	Agricultural Population density	HH		1.851
	Working age population (16 – 60)	Person		58.805
	Female population of working age	Person		30.271
4	Agricultural Population	Person		8.017
	Agriculture employees	Person		4.386
5	Population characteristics:			
	Poor HHs	HHs/ %	2.98	451/ 2,15
6	HH size	Persons	3.6	
	General literacy	%	98.3	
III.	Land			
7	Land Area	ha	6171,2	6.171,2

¹³ City Masterplan

8	Agricultural land	ha		2.123,49
9	Cultivated area	ha		889.93
	Forest land	ha		739,47
	Perennial crop land	ha		254,8
	Fish pond surface	ha		239,29
IV	Economic Sector			
10	GDP growth rate	%	11,60	8,95
11	GDP by Fisheries and Agriculture Sector	000s VND	341.070	361.020
12	GDP by industrial and construction Sector	000s VND	574.390	541.460
	GDP by tourism, trade and services	000s VND	1.563.472	1.798.835

Source: Hoi An Yearbook 2011 and 2012

In 2011, Hoi An welcomed 1.4 million tourists, including 638,029 visitors using accommodation services. The province had 84 accommodation facilities with a total of 3,842 rooms and the occupancy rate of 50.5%. The revenue from tourism and services accounted for 58% of GDP of the city¹⁴. The development of tourism industry has created the opportunities to develop new livelihoods and create jobs and income for 5,000 direct laborers¹⁵ and 12,500 indirect laborers¹⁶. It has also helped to preserve the architectural heritage of the city and promote handicraft production and small businesses such as textiles, lantern making, and pottery while contributing to the development of infrastructure and urban environmental services, bringing benefits for local communities. Tables 21 and 22 present figures for Agriculture and Fisheries Production and the Number of People Employed by Sector.

Table 22: Agriculture and Fisheries Production

	Unit	2011	2012
a. Area for annual crops	ha	1.770,6	1.770,6
Food crops	ha	1.248,2	1.248,2
b. Production of cereals	Tons	4594,0	5.400,5
Production of rice	tons		4.743,3
c. Animals			
Buffalo			253
Cows			1.952

¹⁴ Socio-Economic Report of the People's Committee of Hoi An city in 2011

¹⁵ Number of formal employees in the tourism business establishments

¹⁶ Labor from the indirect product and service suppliers for tourism industry and unskilled workers

Pigs			4.088
d. Fishery production	tons		12 950
- For domestic consumption	tons		7.669
- For export production	tons		5.281

Source: Hoi An Yearbook 2011 and 2012

Table 23: Number of people employed by sector

	Number of employees in each economic sector	2011	2012
a.	Agriculture and fishing	6,381	6,304
b.	Industry and construction	12,473	12,538
c.	Trade service and tourism	21,891	22,262

Source: Hoi An Yearbook 2011 and 2012

3.1.1 Poverty Level in Hoi An

Hoi An's population is evenly divided between males and females. The ratios in some of the wards/communes vary (see **Table 23**). Income in Hoi An is relatively higher than in the rest of Vietnam. In 2012 the poverty rate was 2.15% or 451 households, a decrease from 613 HHs the year before. Figures from the city department of Labour, Invalids and Social Affairs indicate that 179 poor HHs or about 40% are female headed. Poverty rates range from a low of 0.00% in Minh An Ward, located in the Old Town of Hoi An, to a high in Cam Kim Commune, a wood carving and furniture making commune. The number of near poor HHs makes up an additional 2.02% of HHs. These HHs are at risk of becoming poor if subjected to economic shocks. (See **Table 24**).

Table 24: Population and Gender

	Population		Total # of HHs		Female Population			
	2011	2012	2011	2012	2011		2012	
					No.	%	No.	%
Hoi An city (Total)	91,620	92,366	22,085	22,261	46,198	50,4	46,532	50,3
Minh An Ward	6,529	6,150	1,418	1,549	3,455	52.9	3,429	55,7
Tan An Ward	9,503	9,589	1,693	2,230	4,144	43.3	4,183	43,6
Cam Pho Ward	10,084	10,210	2,044	2,431	5,268	52.2	5,319	52,1

Thanh Ha Ward	11,461	11,552	2,442	2,687	5,801	50.6	5,843	50,6
Son PhongWard	4,433	4,488	934	1,021	2,388	53.9	2,411	53,7
Cam ChauWard	10,703	10,822	2,441	2,706	5,548	51.8	5,615	52,4
Cua Dai Ward	5,530	5,596	1,252	1,342	2,797	50.6	2,772	50,1
Cam An Ward	5,582	5,619	1,295	1,364	2,744	49.1	2,811	52,4
Cam Nam Ward	6,291	6,345	1,464	1,489	3,179	50.5	3,216	50,6
Cam Ha Commune	7,256	7,370	1,567	1,755	3,678	50.7	3,745	50,8
Cam Kim Commune	4,023	4,087	1,020	1,105	2,065	51.3	2,086	51,0
Cam Thanh Com.	7,554	7,738	1,888	1,984	3,878	51.3	3,953	51,0
Tan Hiep Commune	2,418	2,440	635	598	1,141	47.2	1,149	47,0

Source: Hoi An Department of Labour, Invalids and Social Affairs

Table 25: Poverty rate by Commune/Ward

Location	Number of Poor HHs				Poverty Rate/ commune/ ward		Number of Near Poor HHs	
	2011		2012		2011/2012		2012	
	No.	%	No.	%	%		N0	%
Hoi An city	613	2,98	451	2,15	2,98	2,15	423	2,02
Minh An Ward	8	0,56	0	0,00	0.28	0.00	19	1,29
Tan An Ward	16	0,98	10	0,59	2.24	0.59	13	0,76
Cam Pho Ward	40	1,90	7	0,33	2.89	0.33	57	2,66
Thanh Ha Ward	94	3,58	73	2,69	4.55	2.69	33	1,22
Son PhongWard	4	0,42	4	0,42	.54	0.42	7	0,73
Cam ChauWard	36	1,50	26	1,05	1.72	1.05	33	1,33
Cua Dai Ward	32	2,56	29	2,31	3.75	2.31	43	3,42
Cam An Ward	62	4,60	48	3,54	6.41	3.54	35	2,58
Cam Nam Ward	54	3,69	45	3,02	4.17	3.02	37	2,48
Cam Ha Commune	49	2,76	36	2,14	4.98	2.14	55	3,27
Cam Kim Commune	114	11,03	92	8,76	12.16	8.79	35	3,33

Cam Thanh Com.	83	4,44	64	3,25	4.71	3.25	32	1,62
Tan Hiep Commune	21	3,29	17	2,40	5.04	2.40	24	3,39

Source: Hoi An Department of Labour, Invalids and Social Affairs

3.1.2 Health Indicators

According to the Medical Center, the number of patients in medical care is often only 70% of the actual questions, the rest usually heal at home (especially diarrhea patients, flu only about 40% of the medical examination in health facilities, 60% are self-treatment at home). Diseases like chickenpox, hand, foot and mouth mostly children (100%), dengue fever, diarrhea, dysentery, flu, mumps, typhus affect both children and adults with 60% children and 40% adults. Treatment costs: 500,000 VND / 1 case (including medical bills, examination test items), severe cases (about 15% ratio) can cost 3 times as high (1,500,000 VND). **Table 25** indicates the number of health care facilities and professionals serving Hoi An

Data indicates that the number of people with water borne diseases linked to water pollution increased between 2011 to 2012, especially dysentery and dengue fever with increased rates of over 10%. (See **Table 26**).

Table 26: Health care indicators

	Indicators	2011		2012	
		State	Non-state	State	Non-state
I.	Health facilities				
10.	Hospitals	1	1	1	1
11.	Health care base station	13	0	13	0
12.	Nursing centers and rehabilitation		52	1	53
13.	Epidemic prevention team	1	0	1	0
14.	Regional clinics	1	51	1	44
15.	Total number of patient beds	210	NA	210	NA
II	Health care employees				
16.	Total health care employees	268		346	
17.	# of Doctors	47		56	
18.	# of Nurses	57		62	
19.	Other staff	164		228	

Table 27: Hoi An – Water borne illnesses

	Infectious disease	2011	2012
1.	Dysentery	35	83
2.	Diarrhea	1.144	964
3.	Dengue fever	155	193

Health Issues related to flooding (Center for Health Care Interview)

During the flooding season the Dept. of Health has more work to do, especially in those areas where residents cope with serious flooding. There is an annual program for HIV/AIDS, malaria, dengue fever focused on community driven prevention. The budget for this program is controlled at the commune level. The Dept. of Health controls the technical matters. Communication about prevention and the use of biological measures (insect which eats the mosquito larvae) aim to protect residents from dengue.

The medical staff is responsible to address diseases related to polluted food and water as a result of the flooding. After each flooding event there is concern about the quality of the water, sanitation, concerns for health. Drinking water is the most important factor, as floodwater is extremely polluted.

Drugs and HIV/AIDS¹⁷

DOLISA reports that there are 57 drug users in Hoi An who are addicts. They are given two options – one is to give up drugs at home, the other to go to an institution to deal with their addiction. If they are unable to give up drugs, they are committed to a Rehabilitation Center in Tam Ky. The *Annual report from Center for Health Care of Hoi An city* reveals that up to 2012, there have been 45 HIV/AIDs cases in Hoi An. Among those, 27 people have died from the disease; 5 cases are in care and the whereabouts of 13 cases are unknown (source: *Annual Report of Center for Health Care of Hoi An*).

3.1.3 Environment Programs in Hoi An

All 13 wards and communes have a Women's Union unit, as well as 2 other units – one for public security and one in the Hoi An market, also for security. The Women's Union's mandate includes environmental protection and environmental awareness raising particularly aimed at women. To accomplish these ends, they use mass media such as the radio and other media such as

¹⁷ The Resettlement Plan prepared under the PPTA discusses HIV/AIDs mitigation measures so these have not been included here.

performing plays. They assign a portion of their communication budget to target environmental awareness raising activities.

Recently the DoNRE assigned a budget for the Women's Union to conduct a "Say No to Plastic" campaign. The WU also cooperates with the Cuu Lao Cham Environmental Protection Division to help women to change their livelihoods. In the past they relied on fishing but now there is a limit on the fishing area. The focus of livelihood efforts is now on fish processing, producing fish sauce, etc. Because Cu Lao Cham is a closed ecosystem, there is a total ban on plastic bags there.

The Women's Union is not involved in Solid Waste Management (SWM) per se but has initiated a garbage-sorting program to sort inorganic, organic and recyclable materials in 4 pilot wards/commune. In Hoi An there is no company collecting recyclables but there are groups of women who come and purchase these.

The garbage-sorting project is supported through a loan and intended to assist poor groups of women – 100 women at first. The Project will give the participants bicycles to travel to various communes/wards with the WU renovating the bicycles to help the women. This also ties in with another WU urban environment program of "No Emissions", trying to encourage urban dwellers to use bicycles instead of motorbikes. From the sale of recyclables the women can make on average VND70,000 to 120,000/day depending on the time of year. This is one of the side benefits of tourism. Their other sources of income are from agriculture. Other wards also conduct garbage sorting activities: they will sell plastic bottles and buy gifts at Tet for the poor. These activities are carried out in cooperation with the Environmental Action Center in Hanoi.

These activities will continue and will include a program to sort garbage at source (HH). Next year the city plans to build a kiln for the garbage. A meeting will be held to draw "Lessons Learned" from the pilot and as of July 1 2013 the WU will spread this program to the other wards, conduct communication activities, help with sorting garbage and monitor results.

The WU is also exploring a program in the Old Quarter to make some environmentally friendly tourist products from recycled cloth and paper. One of the issues is that the cost is high because the product is entirely made by hand. The WU has a shop in the Old Quarter where they sell paper bags made from recycled newspaper, but costs for staff are high and the availability of collected newspaper is limited.

Other activities primarily cover flooding and pollution needs and issues. There is the Three Clean program: clean kitchen, house and road for women. After a flooding event we encourage women to come and clean up the streets. In Hoi An, 3 wards are fully affected by flooding with another 2 partially affected. The City WU warns women in the meetings about measures to adopt, about having emergency supplies on hand. Most of the houses in Hoi An are permanent so this is better to deal with flooding. In the past there were many temporary houses but now are permanent houses with attics and two floors. For the evacuation the WU focuses on the women and children, elderly, disabled, etc. and prepares community cultural centres with two floors for evacuees. The City has other options for evacuation centers, such as larger government offices. The City mobilizes the WU to help evacuees.

3.1.4 Disaster Response Programs

Hoi An suffers from unpredictable events. In the past – severe disasters such as those in 1998, 1999 – high flooding and 2006 – flooding and storm. At those times 10,000 people needed

evacuation. The impact was severe but there were no deaths. In addition to the support of local authorities, people have high level of awareness which brings success for disaster mitigation. The residents understand the danger that disaster can bring and they strictly follow the instruction from local authorities.

When the City plans for residential areas it must take into account flooding, storms, typhoons, sea level rise and saltwater intrusion. The City must also consider these climate change factors when planning for residential areas. The most vulnerable to climate change impacts are the social policy households and poor people.

3.2 Resident Perspectives on Urban Management and Climate Change

The Survey Focus Group Discussions conducted in July 2013 were structured to explore public perception of the environmental and climate change issues, study the local communities' access to urban environmental services, and collect their opinions/feedback on the services and their affordability. The 6 wards/communes selected for the survey are directly affected by the project, including the communes of Cam Ha and Cam Thanh and the wards of Cua Dai, Cam An, and Thanh Ha. Agriculture, fisheries, tourism, and services are the major livelihoods of the people in these wards/communes. Son Phongward, the location of PhapBao, is adjacent to the old city and provides labour for tourism industry and services. All 6 wards/communes were connected to public services such as electricity and water supply and waste treatment system with different levels of supply and use.

Focus Group Participants said that economic conditions of these localities (selected communes/wards) are difficult because the majority of the population is farmers, fishermen, and unskilled laborers with low and unstable income. In general, the poverty rate of these wards/communes ranges from 3%-4.5%, which is higher than average poverty rate of Hoi An city (3%). Agricultural and fisheries livelihoods are dependent on climatic conditions and the weather, while the product prices are always changing according to the market and usually not in favor of the farmers. In bumper crops, the selling prices are low while the input costs for the production are high. In addition, the impact of storms and floods severely affected the production activities and the lives of the residents. Cam An and Cua Dai are the two wards with traditional fishing livelihoods. Although the tourism industry flourished in the two wards with development of many hotels and luxury resorts, traditional fisheries are still the predominant livelihood of than 80% of the households. Most of the local people in Cam Ha, Cam Thanh, and Thanh Ha work in agriculture sector, including the production of rice, flowers, livestock and aquaculture.

3.2.1 Urbanization, Tourism and Climate Change – Demands on City Management

Focus group participants reported that increasing urbanization has resulted in increased dust and noise from transportation and less land area for villages and fields. Increasing tourism has also increased the amount of solid waste and wastewater from the resorts, restaurants and production facilities. In addition, there has been an increased demand for electricity and clean water to serve

the needs of the tourists. The environmental services of the city government have been under increased pressure to meet the needs of residents.

Hoi An has been affected more frequently by natural disasters such as floods and storms requiring action from citizens and government alike. The city has been increasingly vulnerable to the risks of seasonal weather changes which must be managed. There is increased pressure on the government and local people to improve urban management and adaptations to climate conditions.

3.2.2 Impacts of Tourism on Wards/Communes

The development of the tourism industry has contributed to improving the appearance of the villages through the process of urbanization. Roads and urban infrastructure services have been developed. Tourism development has created new livelihoods related to tourism for the local people such as restaurant business, lodging or transportation services. Young people in the areas have the opportunity to work in tourism businesses such as restaurants, housekeeping, bonsai care, and gardening.

The Hoi An People's Committee has developed a plan to increase village tourism products in order to diversify tourism offerings and reduce the pressure of tourism activities on the old city center. Tourism Management Authorities of the province and city and tourism businesses have developed a number of sightseeing tours to these villages, i.e. one-day tour to TraQue vegetable village, Cam Ha commune; sightseeing tour to Thanh Ha pottery village; and tour to Coconut Village in Cam Thanh commune. However, the number of households involved in and benefitting from tourism activities is still limited due to low number of tourists taking these tours and the short duration of the tours. No additional products and services have been developed to increase the incomes in these communities.

3.2.3 Satisfaction with Government Services

All 6 wards/communes surveyed are connected to the power supply system, water supply and solid waste collection. However, the supply capacity of the service providers and the use rate of the households are different between the localities. There are no waste collection and wastewater treatment services although in some areas such as Son Phong ward, the system of wastewater pipes was connected to the residential area 2 years ago. However, this service has not been provided because the wastewater treatment plants have been still under construction with slow progress due to lack of capital investment according to the local people.

Respondents indicated a high level of satisfaction with government's response to natural disasters and post-disaster relief. The pre- and post- disaster periods were also seen to be well covered, with officials advising residents of ways to better respond at a household level to disasters. The evacuation of those needing extra care was seen as timely and effective.

Table 27 provides details on the satisfaction levels with government services.

Table 28: Satisfaction with Government Services

Service	Availability
Electricity:	<ul style="list-style-type: none"> national grid system is connected to all 6 wards/communes and 100% of surveyed households use the power provided by Quang Nam Power Company. Electricity price for domestic use is under the regulation of Ministry of Industry and Trade in 2012¹⁸ with a progressive increase in the price of kWh used. According to the local people, they were fully provided with power with irregular power cut. They often received prior notice of the power cut However, all participants in the surveyed areas reflected that the power consumption of their families increased significantly when the mechanical power meters were replaced by electronic ones. They said that the electricity consumption increased by about 20% when their power use practices had no changes. This issue was submitted to the People's Committee of the city for resolution but it has not been resolved. According to the residents, the price of electricity for domestic use and production are too high now. Electricity bill is a major expense for the household, which accounts for about 8-10% of the household income. Most of the people with low to average incomes are well aware of energy saving. Electricity cost accounts for a large proportion of the costs for agricultural production because most of the agricultural households must use electricity to pump water for irrigation. This greatly affects the profits/income of the farmers. For the poor and low-income households, they are supported by the power company supports with the price of 993 VND/kwh for the first 50kWh used. Besides, poor households are financially supported by the State with 30,000 VND/month for paying the electricity bill under the policy. With this support, the poor households still have access to electricity. However, they only use electricity for the most basic needs such as lighting at night, fans during hot weather, and TV for evening entertainment. They do not support continued increase in the price of electricity although the price increase may be associated with improved quality of service delivery.
Water supply	<ul style="list-style-type: none"> Of the 6 wards/communes surveyed, only Son Phong is the ward with 100% of the households using piped water service of the city. In other wards/communes, the water use rate is relatively low, less than 50%. The piped system has not covered all the villages/hamlets. The water supply is not enough, especially in the summer. The local people in Cam Thanh commune said that the water was not fully provided for several months and not enough for domestic uses. There was no water supply during the day and less water supply at night with small amount.

¹⁸ Circular No. 38/2012/TT-BCT dated 20/12/2012 of Ministry of Industry and Trade

	<ul style="list-style-type: none"> although connected to the city water system, the residents of Cam Thanh ward still have to buy water from Cua Dai ward for drinking and cooking, other activities like bathing and washing clothes must use water from pumping wells which is acid sulphate contaminated. The local people are not willing to use tap water due to cost constraints. In the areas where the groundwater is relatively good in quality and abundant like in Cua Dai, Cam An and Cam Ha, the residents use water from pumping wells for domestic use. for a family with 5-6 people, using pumping wells costs them about 10,000 – 20,000 VND per month for electricity, whereas if using piped water, they have to pay 150,000 VND for 30m³ of water (current water price is 5,500 VND/m³ of water). Besides, in some areas, such as PhuocTrach, Cua Dai ward, as said by the residents, the water supply company requested each household to pay 1.5 million VND for installation of water piped system to reach each household. Due to limited capital capacity, the majority of low-income households do not register to use the piped water supply service. Regarding the quality of the services, the piped water is not provided regularly and sometimes turbid. According to some people in Son Phong ward, they have to filter the water again before using for cooking and drinking. However, they still believe that the piped water has better quality than water from pumping wells, and the quality of well water is rarely checked. When the rivers and lakes in Hoi An were blocked and polluted, they also worry about the quality of pumping well water which was affected by these rivers. So many participants said that if the water service were improved, their households would connect with tap water for drinking and cooking. However, for other activities, they can use water from the pumping wells for cost savings. They requested that the water price should not be increased as it will limit more households to register to use the water supply service.
Waste collection	<ul style="list-style-type: none"> All the surveyed areas are connected to garbage pick-up services of Urban Environment Company of Hoi An city. The frequency of garbage pick-up depends on the areas. In the central wards such as Son Phong, they collect waste 6 days/week for a monthly fee of 20,000 VND. In other wards/communes, the waste is collected 2 days/week for a monthly fee of 10,000 VND. These prices are agreed by all residents. They appreciate the waste collection services because it is a good practice which helps to improve the environment and aesthetics of the neighborhoods. The residents in Cam Ha commune said that the landfills and waste treatment plants were located in their commune, and they proposed to have effective measures to avoid odor contamination and water pollution.
Wastewater	<ul style="list-style-type: none"> the current wastewater directly runs into the wastewater system of the households. The local people support the development of wastewater collection services with reasonable prices and consistent with the affordability of the low and average income workers. Wastewater collection fee which they can afford ranges from 10,000 VND – 15,000 VND/month.

Response to natural disasters and post-disaster relief	<ul style="list-style-type: none"> As the areas are often affected by natural disasters, the local government and people are highly conscious of the flood prevention. In all communes and wards, there are flood prevention boards installed with basic equipment such as boats and lifejackets. Before the natural disaster season, the flood prevention boards of the wards inspect and help the poor and small-sized households protect the houses against the storms. In emergency cases, the boards help to facilitate timely and safe evacuation of the local people. Post-disaster relief is based on the extent of the damage assessment of each household and their economic conditions. The funding for post-disaster relief comes from the state budget, donations of the people, and humanitarian aid or charity. The participants agreed and were satisfied with the supporting policies of the local government.
	<ul style="list-style-type: none">

3.2.4 Awareness of Climate Change

The Focus Group Discussions found that:

- the people in the wards/communes selected for the study had basic understanding of climate change and the impacts of climate change.
- The local people are not well informed about the city plans to cope with climate change. The programs they know are mainly the planning for urban development and flood control works such as building the breakwater in Cua Dai, Thu Bon River embankment
- For agricultural production, the farmers are conscious of the weather changes having more impact on their work.
- In general, information on climate change prevention and protection plans for the local people is still limited. This may be due to local people's incomplete understanding of climate change.
- Most of the local people get this knowledge through news programs on television, radio and newspapers. Participants also acquired this knowledge through meetings with the authorities of the wards/communes.
- In addition, the city government has not publicized the climate change action plan to the population-at-large.

Gender differences

- the female participants had less understanding of climate change than the male.
- The basic reason was that climate change information was not widely disseminated in the communities.
- The information on climate change has been mainly communicated through media channels such as television and newspapers, and women have spent less time watching the news program on TV, reading newspapers, and listening to the radio than men.

3.2.5 Impacts of Climate Change

They know the cause of climate change, which is due to the global warming. The local people are well aware of the impacts of climate change including rising sea level, extreme weather and natural disasters such as floods which may increase in terms of frequency and intensity. Signs of climate change in Hoi An are:

- the changes in weather patterns and seasonal cycles are no longer apparent. Hot weather lasts longer and spring is warmer than the years before, which was pretty cool. Extreme hot weather previously only appeared in July and August, but it happens in April now.
- The temperature also tends to rise in the summer and prolonged hot weather causes severe drought. In recent years, less rain has appeared.
- However, unexpected heavy storms happen, causing flooding and severe damage.
- It is said that this may be due to the effects of global climate change and the hydropower dams on the river upstream, which keeps water from small floods.
- Particularly, the great flood in 2010 together with the discharge of upstream dams caused a big flood, resulting in significant damage to the economy of the city. The level of damage could not be predicted by the local authorities.

Impacts of climate change include lower economic returns on labour and investment, increased household cost of living, lack of irrigation water, increased salinity, higher production costs and lower soil fertility. These impacts are detailed in [Table 28](#).

Table 29: Impacts of Climate Change on Residents

Impact	Description
<i>Lower economic returns on labour and investment</i>	<ul style="list-style-type: none"> • Extreme hot weather during April to August affects their productivity. The people working outdoors such as farmers and unskilled workers cannot work from 11 am to 3 pm because it is too hot. They have low incomes due to fewer working hours than other workers. • The flooding in winter affects production and services of all households and businesses in the old city.
<i>Increased household cost of living</i>	<ul style="list-style-type: none"> • the household cost of living in the summer increases due to higher demand for electricity and water and the rising cost of health care (e.g., medications, cooling equipment, etc.), leading to more difficult economic conditions of the households.
<i>Lack of irrigation water</i>	<ul style="list-style-type: none"> • due to less annual rainfall and prolonged hot weather which causes drought, there is not enough irrigation water for the crops, leading to slow growth of the plants and low yield.
<i>Increased salinity</i>	<ul style="list-style-type: none"> • Salinity usually occurs in summer, which affects rice yield. In some agricultural villages of Cam Ha and Thanh Ha, the local people could grow 3 rice crops (winter-spring, spring-summer, and summer-autumn crops) previously, but there are now only 2 crops per year. The spring-summer rice crop cannot be cultivated due to salinity, drought and diseases/pests. • The conditions are worse in the low-lying areas with acidic saline groundwater like Cam Thanh.

<i>Higher production costs</i>	<ul style="list-style-type: none"> For the crops such as ornamental plants and vegetables, the farmers have to increase irrigation watering, resulting in increased production costs (such as labour, electricity for pumping water, etc.).
<i>Lower soil fertility</i>	<ul style="list-style-type: none"> The annual natural floods in Hoi An, such as floods in October and November, are effective and useful for agriculture production. The farmers said that the floods washed away the waste in the river and brought the alluvial soil. In their opinion, the small regular floods in Hoi An do no harm to people. What makes people worried is that the floods do not occur under annual flooding cycle as before. In recent years, the floods have caused enormous damage to production. Besides, according to the participants, the floods now no longer carry much silt as before due to several hydropower plants in the watershed.
<i>Serious flooding</i>	<ul style="list-style-type: none"> Erratic weather patterns have affected the local people's harvest. Although the annual rainfall is low, heavy rain often causes severe flooding in the fields, affecting crop production.
<i>Diseases in cattle and poultry</i>	<ul style="list-style-type: none"> The hot weather and lack of water influence the health of the herds, facilitating disease development. Diseases such as avian influenza, hemorrhagic septicemia in cattle, and PRRS have occurred in the province and Hoi An city in Quang Nam province. Specifically, PRRS disease in pigs appeared in 2013.
<i>Water source pollution</i>	<ul style="list-style-type: none"> Prolonged hot weather in summer is a condition for the increase of crop pests. In addition, the domestic waste and industrial production waste discharged into the rivers causes negative impacts on water resources. In the absence of regular floods and irregularly dredged rivers, the waste has not been washed away. Water quality greatly affects productivity of aquaculture. However, the households' ability and efforts are limited and cannot make a comprehensive impact on the overall improvement on the water quality of the river. In recent years, according to the participants, the aquaculture industry has been seen reduced growth due to contaminated water, causing diseases of shrimp and fish. This observation is supported because after the floods, the aquaculture yield increases due to cleaner water for aquaculture.
<i>Reduction in income</i>	<ul style="list-style-type: none"> All these factors affect the productivity of crops, thus affecting the income of the households. To ensure the crop yields, the farmers have to work hard and invest more in irrigation water, fertilizer, and seeds... According to the farmers, in the context of stable agricultural commodity prices, these additional investments reduce their income. To ensure the households' incomes, the farmers have to do more work and work more hours in the day. Specifically for bonsai growers in Thanh Ha ward,

	previously they employed from 2-3 workers, but now they have to do everything themselves to reduce the cost of production.
<i>Impaired Health</i>	<ul style="list-style-type: none"> The health of local people is affected by extreme weather. Prolonged extreme heat causes sleeplessness and tiredness. Most children and old people are easily affected by this weather. In all the surveyed areas, people said that children were easily caught the popular diseases such as cold, fever, foot and mouth disease, sore throat and digestive disorders. Old people often have the symptoms of high blood pressure and stroke. Overcrowded hospitals and shortages of places in the hospitals for the patients quite commonly happen. The residents in Cam Ha commune, Cam An ward said that cancer disease increased, and almost all cases of illness and death in the localities were due to cancer. Although there are no accurate statistics and also unexplained, local people feel worried about the health of their families and the community.*

* NB: this information is reported as received from participants in the FGD. By reporting it here does not indicate that the researchers and the consultants are in agreement about the causes of health issues.

3.2.6 Awareness of Hoi An Environmental Initiatives

The authorities of Hoi An city have launched several initiatives to protect the environment. These initiatives have been well publicized in the wards/communes and seriously followed. In each ward/ commune, there is staff in charge of environmental protection to support the people in implementation. The discussions with the residents in 6 wards/communes revealed that they strongly supported environmental initiatives of the city and actively participated in the implementation of this program. The initiatives to protect the environment of the city included planting trees, separating garbage and waste, environmental clean-up campaigns, saving electricity, making compost and other commune initiatives. (See [Table 29](#)).

Table 30: Environmental Initiatives

Initiative	Description
<i>Planting trees</i>	<ul style="list-style-type: none"> Mobilizing local people to grow trees in the common areas of the city blocks, neighboring areas and in home gardens
<i>Waste separation</i>	<ul style="list-style-type: none"> Providing training for the households on how to reduce waste and classify waste at the source for effective waste management of the city. Waste is classified into 3 types including <ul style="list-style-type: none"> organic waste which can be recovered for reuse as fertilizer in the household gardens; the waste that can be recycled will be sold to recycling facilities; and hazardous waste that must be taken away for disposal through garbage pick-up system. The State should publicize the negative impact of plastic bags on

	the environment and encourage the reduced use of plastic bags for each household through exchange of 100 plastic bags for 01 shopping basket. Encouraging women to use regular bags instead of using several plastic bags.
<i>Environmental clean-up campaign</i>	<ul style="list-style-type: none"> the people in the city participate in the campaign on cleaning surrounding environment in their neighborhoods once a week.
<i>Electricity use reduction</i>	<ul style="list-style-type: none"> Mobilizing local people to reduce electricity consumption and contribute to environmental protection
<i>Making compost</i>	<ul style="list-style-type: none"> Some localities are selected for pilot organic fertilizer production model at households scale. Compost is made from food scraps and the waste derived from plants. Compost is used to fertilize crops
<i>Examples of commune Initiatives</i>	<ul style="list-style-type: none"> the children in Cam Ha are given the autonomy to keep their streets clean and sanitary
	<ul style="list-style-type: none"> in Son Phong ward, there are regulations on burning votive offerings and the funerals are not allowed to last more than 3 days, etc.

3.2.7 Factors that may promote or hinder the successful implementation of climate change programs

Respondents said that there were two fundamental factors that could promote the successful implementation of climate change adaptation programs in Hoi An. The first factor was the solidarity and enthusiasm of the people in implementation of sound policies of the State. The second factor was the efforts of the leaders and officials of local governments. This was also demonstrated through the successful implementation of the programs on socio-economic development and environmental protection in recent years. These two factors are the strength of Hoi An city and will certainly contribute to the successful implementation of climate change adaptation program in the future.

However, the people are aware that the climate change adaptation program requires a financial investment and technical assistance. Most of the people in the wards/communes surveyed were unskilled workers with difficult economic conditions, so it was hard to mobilize financial contributions from these people for the implementation of climate change programs. Besides, both government officials and the people are inexperienced in the field of climate change; this can also affect the efficiency of the development and implementation of climate change adaptation programs in the future.

3.2.8 Opinions about Project

Local people agreed with the urban service development and environmental protection programs launched for implementation by Hoi An city government. They also fully agreed with the components of the project on improvement of urban environment and climate change impact mitigation (TA 8171-VIE) proposed for Hoi An city. They hoped that the urban environmental

services such as water supply, garbage pick-up, and wastewater treatment would be increasingly improved to meet their demands and provide better services to the people. However, due to difficult economic conditions, the majority of local people have low and average incomes, so they do not really support the increase of the urban environmental services such as the prices of electricity and water, and waste collection fee. In the context of negative impacts of climate change, the local people's lives and economic conditions have become more difficult, the price increase may hinder people's access to electricity, water and wastewater treatment. In case it is required to increase the prices, the local people only can afford the rise of maximum 5% of the current rates.

It is known that the State will increase the price of electricity from August 8th, 2013 under Circular No. 19/2013/TT-BCT of Ministry of Industry and Trade. Thus, the situation forced the local people to continue finding other ways to minimize the power usage. However, in the context of climate change impacts such as drought and hot weather, electricity demand for households is intensified for domestic uses and irrigation demands, which makes poor people's lives even more difficult.

3.3 Project Site Social Assessments

3.3.1 Hoi An Water Resources/Efficiency Project

Water Source Protection/Conjunctive Use Scheme

Water Source Protection and Utility Efficiency will (i) protect Lai Nghi Reservoir from salinity through (a) dredging of the reservoir, (b) reinforcement of the existing embankment, (c) replacement of the existing manually operated sluice gate with a motorized gate, (d) installation of a new raw water pumping station and associated pipeline connecting the reservoir to the new water treatment plant, (e) installation of a wastewater collection system around the reservoir; and (ii) improve efficiency in water supply through (a) non-revenue water reduction and (b) introduction of management information systems.

Sub-component Beneficiaries

The upgrading of the Lai Nghi reservoir represents an important project component for a significant number of beneficiaries, including urban and peri-urban inhabitants of Hoi An, tourism businesses, farmers, residents of surrounding communes, and irrigation authorities. Improved water source protection will contribute to quality of life improvements.

Associated Facilities

The original pipeline network in the city has a total length of about 32 km in diameter from 100-300 mm covering only for small part of the city, mainly the old town area. Water supplied from the existing water plant is only able to meet about 30% of domestic demand of the whole city. The majority of residents in Hoi An continue to use shallow well water which has become increasingly contaminated by faecal pollution and impacted by salinity. In 2012-2013, a new water plant is under construction in the city of Hoi An with a capacity of 15,000 m³/day.

Findings from PPTA 8171 survey showed that because of water supply capacity and availability of pipe network, only 1 ward (Son Phong) with 100% households connected. Other ward/commune the pipe network only reach 50% total households of less. Shortage of water in Cam Thanh commune is around year but more serious in summer time. Quality of underground water in Cam Thanh reported not good because alum and high salinity.

Water Supply User Surveys

The PPTA Social and Gender Team initiated two Public Perception surveys in Hoi An: one covering businesses, the other conducted through a series of focus groups with residents from low to moderate income households. These surveys supplemented a survey of over 9000 HHs undertaken by Quang Nam Water Supply Company to determine willingness to connect and affordability issues¹⁹. This survey covered 11 communes/wards, of which 5 are linked to Project components. The information from these surveys is indicative of the population's demand for water services, providing support for the project's upgrading the Lai Nghi reservoir. Water service to HHs and businesses is the responsibility of the Hoi An Water Supply company.

Business Survey Findings

The business survey was conducted by a research team from the Centre for Social Research and Development (CSR/D) in July, 2013 in Hoi An city. **Table 30** indicates the number and type of business participating in the survey. The survey represents about 50% of similar businesses in Hoi An.

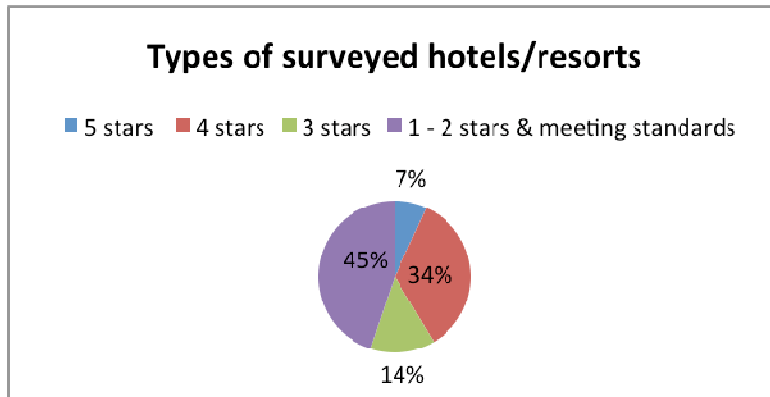
Table 31: Number of participating business by type of business service

No.	Type of business service	Quantity	Percentage
1	Hotel and resorts	29	73%
2	Garment, handicraft and fine arts	4	10%
3	Restaurant & café/bar	6	15%
4	Other businesses	1	3%
Total number of surveyed businesses		40	100%

¹⁹ *Report on Willingness to Connect to Water to Upgrade and Extend Hoi An Water Supply, Quang Nam Province.* Quang Nam Draining Supplying Water Joint Stock Company with Local Governments of : Thanh Ha, Tan An, Cam Ha, Cam Kim, Cam Nam, Cua Dai, Cam Thanh, Minh An, Son Phong, Cam Pho, Cam Chau

Among the 29 accommodation businesses participating in the survey, two are five star resorts; ten are four star hotel and resorts; four are three star hotels and 12 hotels are classified as 1-2 stars with one small hotel that meets basic standards. **Figure 4** presents percentage of surveyed hotels by their classification.

Figure 4: Types of surveyed hotels/resorts



The number of employees of the participating businesses ranged from small numbers (1 – 20) to more than 100. **Table 31** shows the employee numbers of the surveyed businesses.

Table 32: Number of employees of surveyed businesses

Number of employees	Number of business	Percentage
1-20 people	9	22.5%
21-50 people	12	30%
51-100 people	6	15%
more than 100 people	13	32.5%
Total	40	100%

In order to compare responses concerning utility and city services, answers to questions about electricity and solid waste management have been included in the following survey information.

Enterprise Environmental Programs Underway

Among the 40 surveyed enterprises, 37 have environmental programs underway, one enterprise isn't taking any action and two have no comment on this point. Survey results show that 37 respondents engage in water and electricity efficiency programs. Garment and handicraft workshops don't have many environment activities. The hotels and restaurants are more active in this regard:

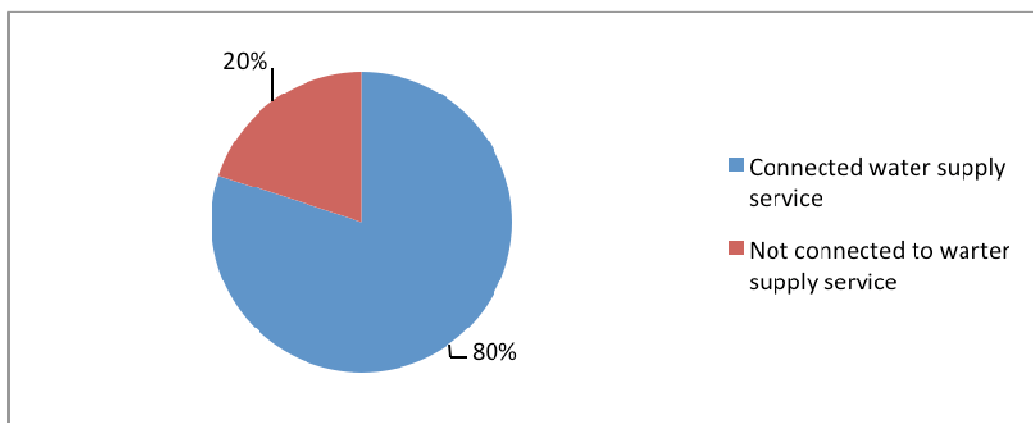
- **Water efficiency:** Large hotels and resorts issue company policy on saving water and electricity. Some hotels control water speed of showers and water level of toilet flush boxes. Hotels have also changed to two flush buttons to save water. One restaurant said that they recycle water for watering their garden. Larger resorts and hotels with internal water treatment also use treated water to irrigate trees and plants. Generally, four and three star hotels implement more water saving methods than smaller hotels. There is very little communication to guests to call their attention for the need to save water. Among 37 respondents, only two hotels have stickers in guest room to encourage guest to save water.
- **Electricity efficiency:** Respondent enterprises have policies on electricity saving and monitor the implementation of these policies. Large hotels and resorts are more innovative for saving electricity. They design lighting system to save electricity, use compact lights, magnetic keys, and clean the air conditioners regularly as well as replacing old equipment with new energy efficient models. Many hotels have stickers to encourage guests to save electricity. Among the 29 surveyed hotels/resorts, there are four resorts/hotels that use solar energy to heat water for guest bathrooms. One solar system is connected to the spa area as well.
- **Solid waste management:** Garbage is collected by municipal waste collection service. Hotels and restaurants business said that they separate waste into three categories namely organic, recyclable and waste for disposal. Organic waste such as leftover food is given to farmers for feeding animals; falling leaves are burned. Recyclable wastes are sold to collectors. There is no activity for making compost for fertilizing plants and little evidence of reuse of materials.

Perception of Public Services – Quality, Efficiency and Cost

- **Clean water supply**

32 enterprises (80% of survey respondents) are connected to the Hoi An water supply system and 8 (20%) are not connected (See **Figure 5**). Among those not connected, there are 2 resorts, 5 hotels and one construction enterprise.

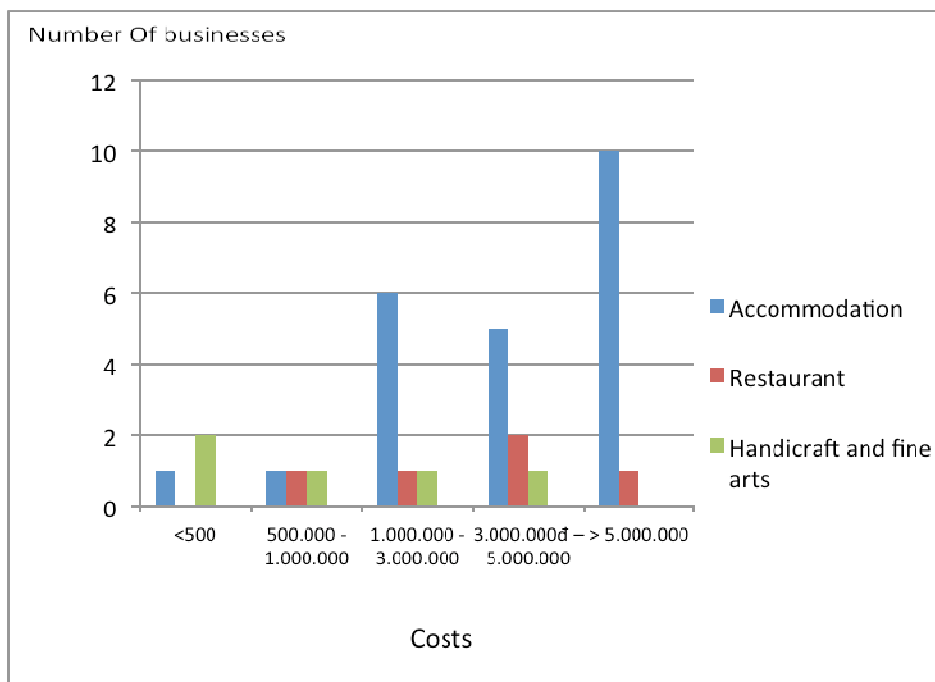
Figure 5: Percentage of businesses connected to water supply system



Those businesses not connected to the Hoi An water supply system use underground water. These enterprises obtained permission from the Department of Nature Resource and Environment (DONRE) to exploit underground water and pay monthly fees at around 2 million dong per month for resource exploitation. One resort has 16 wells in total. This resort consumes about 100 m3 per day.

The current price for water supply for the business service sector is 8,800VND/m3. A few resorts and hotels said that in addition to using municipal water supply, they also have underground water wells. One resort said that they need 210m3 per day for all activities. Therefore, if using water supply only, they would have to pay a monthly fee about 55 million dong per month. In order to reduce water cost, they also use underground water for washing, watering plants and as contingency in case of municipal water supply is cut off. This helps to reduce water costs by about 50%. **Figure 6** shows the costs of water by number and business type.

Figure 6 : Level of water cost by type of businesses



Water quality is the biggest concern of surveyed enterprises, followed by service capacity and price. 50.1% of respondents are dissatisfied/very dissatisfied with water quality – sometimes the water is turbid and contains alum. 25% are dissatisfied with service - in their opinions, the current water supply capacity is weak. There is inadequate supply in summer. 15.6% are dissatisfied with price. **Table 32** shows the level of satisfaction with the water supply system.

Table 33: Level of satisfaction of water supply system

Level of satisfaction	Very satisfied	Satisfied	OK	Dissatisfied	Very Dissatisfied	No comment
Service						
Number	0	8	13	8	2	1
Percentage	0.0%	20.0%	32.5%	20.0%	5.0%	2.5%
Cost						
Number	0	9	18	5	0	0
Percentage	0.0%	28.1%	56.3%	15.6%	0.0%	0.0%
Water quality						
Number	1	5	10	14	2	0
Percentage	3.1%	15.6%	31.3%	43.8%	6.3%	0.0%

- **Waste water treatment**

Presently, wastewater treatment service is not available in Hoi An City. Thus no assessment on service, price and quality of this service was done for this survey. There is a formal agreement between enterprises and Hoi An municipal city that wastewater of enterprises must be treated and meet level B before discharging to the environment. Depending on the size and type of businesses, internal wastewater treatments have been built. A few respondents from small restaurants and garment workshop said that their enterprises only have pits for discharged wastewater.

Most hotels and resort have built proper treatment systems. Cost for construction of these systems is rather expensive. A five star resort said that they spent about 1.5 billion dong to build a wastewater system. This resort uses treated wastewater for watering plants. Several medium hotels paid wastewater system construction costs of about 400-500 million dong. Many enterprises propose that the municipal government should develop a central system to collect wastewater from enterprises.

- **Solid waste management**

All 40 surveyed businesses are connected to the solid waste collection service. Contracts are signed between the urban environmental service company and the customer and are renewed every year. Waste is collected daily before 7:00am. The payment amount is based on estimated cubic meter (m³) of discharged solid waste. Monthly fee for this service ranges from minimum cost at VND200,000 (for a small restaurant and a small handicraft workshop) to maximum cost VND5,000,000 million dong (for a large four star resort) . **Table 34** shows minimum, maximum and mean value of solid waste collection fee by type of business.

Table 34: Solid waste collection fee

Group	Amount of fee	Mean value (VND)	Min of fee (VND)	Max of fee (VND)
Accommodation business		1,824,800	300,000	5,000,000
Restaurant business		1,280,000	200,000	4,000,000
Garment and Fine arts business		1,145,000	200,000	4,500,000

In general, informants were satisfied with the solid waste collection service. However, there were several comments concerning inadequate waste collection workers, which required staff of hotels to assist them to load waste. Sometimes the service is not provided and no reason is given. Also the cost for toxic waste treatment is rather expensive. In terms of price, all companies were satisfied with the price for non-toxic waste collection but disagreed with fees for toxic waste. One resort said that they have to pay VND 24million dong/year for toxic waste collection while there is only 6-7 kg of this type of waste per month. Another hotel said they have to pay 15million dong/quarter for toxic waste collection. [Table 34](#) presents level of satisfaction of solid waste collection service.

Table 35: Satisfaction of solid waste collection

Level of satisfaction	Very satisfied	Satisfied	OK	Dissatisfied	Very Dissatisfied
Cost					
Number	1	19	15	5	0
Percentage	2.50%	47.50%	37.50%	12.50%	0.00%
Service					
Number	2	27	9	1	1
Percentage	5.00%	67.50%	22.50%	2.50%	2.50%

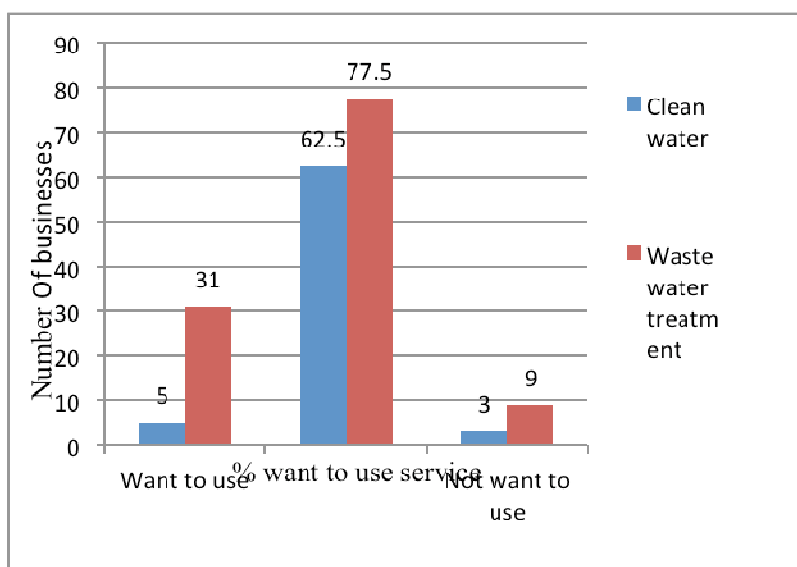
- Demand for public services**

Six (6) of the enterprises not connected to city water system stated that they want to connect to city water supply because they believe quality of water is better than underground water source. However, three businesses do not want to connect because using underground water resource doesn't cost as much and the quality of the water is currently good. Respondents indicated that underground water in the area of An Bang and Cua Dai beaches is better quality than other places in Hoi An.

Concerning waste water treatment, 31/40 businesses want to connect to future waste treatment service while 9/40 businesses do not want to connect because they constructed their own water

treatment plants and, according to them, their plants function well. **Figure 7** shows the demand for public services from surveyed businesses.

Figure 7: Business demand for public services



- **Economic Analysis from Main Report**
- Water tariffs are collected by the Hoi An division of QN WSDC. Current tariffs are summarised in Table 36. These tariffs comply with the previous World Bank loan covenants.

Table 36: Current Water Supply Tariffs (2013) for Hoi An

Area	Domestic (VND/m ³)	Institution (VND/m ³)	Industry (VND/m ³)	Trade and Service (VND/m ³)
Tam Ky, Hoi An	5500	8000	8500	9500

- Water tariff projections indicate that without a tariff increase QN PPC will need to subsidize the O&M and debt service costs at an increasing rate from 2014. To achieve cost recovery, average water tariffs are estimated to need to be increased to VND 9018/m³ in 2014 and VND11325/m³ in 2020, with domestic tariffs increasing to VND 5863/m³, and 7369/m³, respectively.
- Affordability analysis was conducted to determine if the proposed water tariffs are affordable. The assumed increase in water and wastewater tariff to VND 5863/m³ from 2014, would result in estimated water bill in of about VND 73872/month for an average family, equivalent to about 2.7% of monthly household income. Since this value is below the international norm of 4%, they are considered to be affordable. For hotels, similar analysis shows for the

medium (3 star) hotels that the water tariff would represent 1.0% of monthly revenues.

- A further test was conducted through comparison of the proposed tariff increase with the estimated incremental willingness-to-pay (WTP) of VND 275/m³ for improved water supply services. The proposed increase in water tariffs between 2013 and 2020 represents in fact a decrease in tariffs in constant prices. For hotels an average incremental WTP of 712.5 VND/m³ was derived from the social surveys. The proposed increases were slightly higher than this value in the early years but within the increased WTP from 2018 onwards. While therefore the proposed tariff increase is considered to be within the range of the beneficiaries' WTP, there will be a need through IEC campaigns developed in the project to publicize the benefits of improved water supply.

For those already connected to the water supply 35% of those surveyed would be willing to pay an increase up to 5% of current water tariff with 37.5% willing to pay an additional 10%. One business was willing to pay more than 10% increase, while ten businesses did not answer this question. The 5 businesses wishing to connect to the water supply feel they can afford to pay for the service at the current tariff level. 95% of interviewed businesses would pay more for improved service (quality and quantity). (See **Table 35**).

Table 37: Willingness to pay for increased water supply service

	1-5%	5-10%	>10%	No comments
Number	14	15	1	10
Percentage	35.0%	37.5%	2.5%	25.0%

Household "Willingness to Connect" Survey

The *Report on Willingness to Connect to Water to Upgrade and Extend Hoi An Water Supply, Quang Nam Province* survey was conducted in February 2013 by the Quang Nam Water Supply Company. The total number of households surveyed was 9,040 representing approximately 95% of potential customers in the peri-urban Hoi An city water supply service area. Investigators included heads of villages or residential groups, representatives of Women's Union, Youth Union and officers from Commune People's Committees. Researchers spoke to both male and female householders for opinions (**Table 36: Sex of survey respondent**).

Table 38: Sex of survey respondents

Commune	Male	(%)	Female	(%)
Thanh Ha commune	835	69,58	365	30,42
Tan An commune	1.117	70,70	463	29,30
Cua Dai commune	689	59,91	461	40,09
Cam Thanh commune	373	74,60	127	25,40

Minh An commune	341	77,50	99	22,50
Cam Pho commune	372	74,40	128	25,60
Son Phong commune	280	70,00	120	30,00
Cam Nam commune	947	73,98	333	26,02
Cam Ha commune	606	73,01	224	26,99
Cam Kim commune	377	68,55	173	31,45
Cam Chau commune	429	70,33	128	29,67
Total	6.366	70,42	2.674	29,58

Rate (%)	0,27	3,22	85,05	10,50	0,96
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• Survey Summary

8079 households currently use a variety of water sources such as wells, rivers and lakes. 6730 households or 83.92% expressed a willingness to connect to the water supply system. 1299 households or 16.08% are not willing to connect. **Table 38** shows these figures. The reasons given for not being willing to connect are shown in **Table 39**. These include:

1. Satisfied with current water source, whether drilled well or other water source (74,90% - 973 HHs)
2. Difficult conditions, cannot afford to pay (16,63% - 216 HHs)
3. Useless than the minimum contract (6,77% - 88 HHs)
4. Share with someone/ relatives (1,69% - 22 HHs)
5. Other reasons: (0%).

Table 39: Willingness to connect to the water supply: survey summary

Commune	Number of HHs surveyed	Number of HHs currently not connected to water supply system	HHs expressing Willingness to connect		HHs Not Willing to Connect	
			Number	%	Number	%
Thanh Ha commune	1.200	978	534	54,60	444	45,40
Tan An commune	1.580	1500	1406	93,73	94	6,27
Cua Dai commune	1.150	1150	1025	89,13	125	10,87
Cam Thanh commune	500	347	328	94,52	19	5,48
Minh An commune	440	426	385	90,38	41	9,62

Cam Pho commune	500	344	244	70,93	100	29,07
Son Phong commune	400	320	320	100	-	-
Cam Nam commune	1.280	1112	939	84,44	173	15,56
Cam Ha commune	830	830	553	66,62	277	33,38
Cam Kim commune	550	462	458	99,13	4	0,87
Cam Chau commune	610	610	588	96,39	22	3,61
Total	9.040	8079	6780	83,92	1299	16,08

Table 40: Reasons for not being willing to connect

Commune	Have decent water system (Drilled well)	Cannot afford	Useless than the minimum contract	Share with someone/ relatives	Others
Thanh Ha commune	404	12	18	10	-
Tan An commune	68	26	-	-	-
Cua Dai commune	74	51	-	-	-
Cam Thanh commune	-	12	-	7	-
Minh An commune	30	5	6	-	-
Cam Pho commune	49	16	35	-	-
Son Phong commune	-	-	-	-	-
Cam Nam commune	111	57	-	5	-
Cam Ha commune	218	30	29	-	-
Cam Kim commune	4	-	-	-	-
Cam Chau commune	15	7	-	-	-
Total	973	216	88	22	-
Rate (%)	74,90	16,63	6,77	1,69	-

The survey confirms the Project investment in dredging the Lai Nghi Reservoir, providing additional water supply. The Project should ensure that consultations about the use of the water from the reservoir take place as identified in the Stakeholder Participation and Consultation Plan, with women comprising 30% of participants in community meetings. A Conjunctive Use Scheme will ensure that project goals of equity and inclusiveness are met, integrating the needs of urban water users, peri-urban farmers and tourism enterprises.

Social Impacts – Focus Group Findings

Water Supply

Many report that their household wells are no longer safe as they are contaminated with a variety of pollutants. People indicate households are using ground water for household cleaning and other purposes, while sometimes purchasing water for drinking and cooking.

Those households that are connected to the water supply system report problems with water quality, primarily turbidity and taste, as well as problems with quantity, in that during the drier months as well as certain times of day (particularly in the evening), water availability is reduced, sometimes to no flow at all. The water supply is not enough, especially in the summer. The local people in Cam Thanh commune said that the water was not fully provided for several months and not enough for domestic uses. There was no water supply during the day and less water supply at night. Therefore, although connected to the city water system, the residents of Cam Thanh ward still have to buy water from Cua Dai ward for drinking and cooking, other activities like bathing and washing clothes must use water from pumping wells which is reported to be contaminated with acid sulphate.

Regarding the quality of the services, the piped water is not provided regularly and is sometimes turbid. According to some people in Son Phong ward, they have to filter the water again before using for cooking and drinking. However, they still believe that the piped water is better quality when compared to the water from pumping wells, and the quality of well water is rarely checked. When the rivers and lakes in Hoi An were blocked and polluted, they also worry about the quality of well water which could be affected by these rivers. Many participants said that if the water service were improved, their households would connect with tap water for drinking and cooking. However, for other activities, they can use water from the pumping wells for cost savings. They requested that the water price should not be increased as this will limit the number of households who can afford to use the water supply service.

These circumstances affect women most in their role as housekeepers and care givers. The lack of good quality water in sufficient quantity has serious consequences for family health and sanitation, leading to poor nutritional status as well as increasing women's daily workload. Fetching water outside of the home, treating this water for human consumption and ensuring that cleanliness is maintained are the responsibility of women.

Irrigation requirements. During the project social impact consultations the impact of climate-change-driven higher temperatures and decreasing water availability, leading to severe livelihood and income pressures for farmers in Hoi An was raised. Severe droughts of the past few years have resulted in crop failures due to the lack of sufficient irrigation water.

Quality of life improvements. Those living near the Lai Nghi Reservoir talk of a time when the water was clear and fish were abundant, when children could swim in the water. This time is long gone as the reservoir is overtaken with water hyacinth, choking the water of its oxygen and preventing fish growth. They also report noxious smells and people utilizing the reservoir as a convenient dumpsite for unwanted detritus. The low water levels in the reservoir are said to contribute to the increase in dengue fever over the past few years. Improved water source protection supported by the project will address these issues, with the expectation that the quality of life of those around the reservoir will be improved.

Willingness to Pay and Affordability. The local people are not willing to use tap water due to cost constraints. In the areas where the groundwater is relatively good in quality and abundant like in Cua Dai, Cam An and Cam Ha, the residents use well water from pumping wells for domestic use. According to them, for a family with 5-6 people, using pumping wells costs them about 10,000 – 20,000 VND per month for electricity, whereas if using piped water, they have to pay 150,000 VND for 30m³ of water (current water price is 5,500 VND/m³ of water). Besides, in some areas, such as PhuocTrach, Cua Dai ward, residents reported that the water supply company requested each household to pay 1.5 million VND for connection of piped system to each household. Due to limited capital capacity, the majority of low-income households have not registered to use the piped water supply service.

Affordability. Generally, the local people think that electricity and water prices are now still high compared to the average income of the households, so they do not support increases in the prices. If the prices must be increased to improve the service quality, they are only willing to pay maximum 5% higher than the current rate. There should be policies to provide a certain amount of water free or through a cash support program to ensure that the poor households have access to water services for their basic needs. Among the basic environmental services, the priority for local people is the improvement of water supply system and organization of wastewater collection and treatment.

Project Mitigation Measures and Social Assessment

In order for Hoi An to provide appropriate water supply to its inhabitants and its large number of tourists, a reliable source of water is required, along with extension of the water supply system. A deepened Lai Nghi reservoir and upgraded outflows will meet this need.

Through project technical assistance, increasing the efficient tracking and prevention of non-revenue water ((NRW), water escaping the system prior to use) will allow the Quang Nam Water Supply Company to keep the cost of water supplied to residences at an acceptable level i.e. close to the current cost of 5,500 VND/m³. Surveys conducted with hotels and tourism businesses in Hoi An indicated that very few promote water conservation to their employees and guests. A public campaign to highlight the need to conserve precious water will be supported through project capacity building funds.

The Lai Nghi Reservoir will have the capacity to supply irrigation needs for poor women and men farmers in the peri-urban area through access by the Irrigation Pumping Stations at Ha Chau and Cam Thanh. A salinity barrier will be constructed during the project civil works, making the Lai Nghi water suitable for irrigating crops as well as providing water to other growers such as the bonsai and flower producers in Thanh Ha, the commune on the banks of the reservoir.

The work on Lai Nghi reservoir will not result in any involuntary resettlement. The social impacts are expected to be positive. Project capacity building and training activities are expected to benefit project-appointed staff (members of the provincial steering committee and the project management unit with a target participation of 30% women), staff of collaborating agencies and implementing agencies as well as staff of communes/wards and socio-political organizations such as the Womens Union, the Youth Union and the Farmers Union. The capacity building activities

will ensure that women participants comprise at least 30% of attendees, with representation proportional in cases where women comprise the majority of members/staff.

3.3.2 Hoi An Climate Change Adaptation Project

Climate Change Proofing Urban Development will provide basic urban services to new pilot urban area along Co Co River including (i) green buffer area along the river bank, (ii) roads and drainage systems with street lights, (iii) wastewater networks, and (iv) access road to connect the new pilot urban area with Cua Dai Bridge leading to Da Nang City.

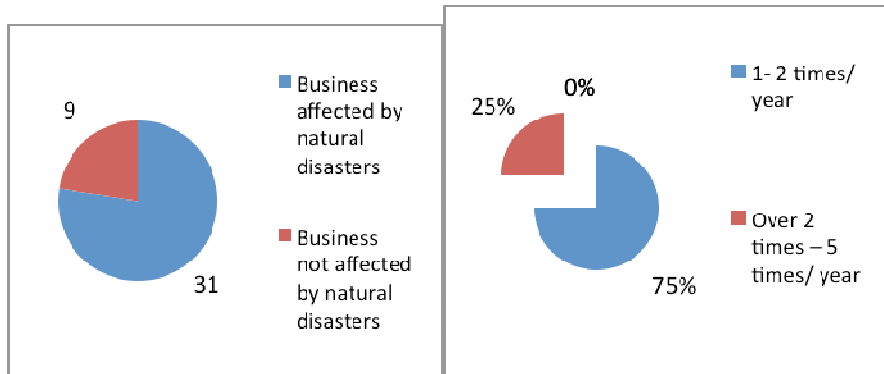
Integrated Flood Management and Coastal Protection will include (i) increased detention capacity of Phap Bao Lake by dredging, (ii) flood forecast and warning system covering Vu Gia and Thu Bon river basin, and (iii) elevation of Provincial Road 608 to create a flood evacuation route on the south-west side of Hoi An City.

The urban development and climate change adaptation components of the project will assist the Hoi An government to spread the benefits of development to peri-urban areas. The project will contribute to flood prevention and erosion control while also increasing resident safety through constructing potential escape routes in the event of a catastrophic natural disaster such as a tsunami. The new urban areas will extend water and wastewater services into the peri-urban areas and will incorporate climate change adaptation measures. Additional higher income groups living in new urban areas will increase livelihood opportunities for the poor on the outskirts of Hoi An.

Public Perception Survey - Businesses

Hotels and other tourism businesses located along the banks of the Co Co report being affected by flooding at various times of the year, leading to reduced visitors and lower economic returns. In the Public Perception Survey conducted by the study team with 40 tourism enterprises in Hoi An, 75.5% of those enterprises interviewed reported that their businesses are affected on an annual basis by natural disasters, with 75% citing these impacts as occurring once or twice a year. Businesses located along the coast report being subject to strong winds and typhoons annually while businesses located in the old quarter near Thu Bon River and along Co Co riverbank are often affected by flood. **Figure 8** shows the number of businesses affected by natural disasters, and the frequency of these.

Figure 8: Number of enterprises affected and not affected by natural disasters & frequency



Natural disasters affect business in several ways, most significantly reducing revenue and profits. Operations must be suspended during disasters, and in many cases, existing guests depart early and leave Hoi An because of flooding. Bookings are often canceled.

After a flood or typhoon, respondents report taking on average five days to clean up the damage and begin to restore the business to its previous state. Typhoons destroy glass windows, tiled roofs and plants/trees. Floods damage the furniture and the goods for sale. Normally, the basement and/or first level are flooded. In 2011, many garment and handicraft workshops were badly affected because flood water level rose so rapidly that they did not have time to remove their materials to safe areas. Beaches at several resorts in the Cua Dai area have been eroded, with some resorts building embankments to protect their beaches. The downside of this work has been the negative impact on neighbouring properties, where erosion has increased, requiring additional embankment work.

The businesses surveyed are aware of disaster mitigation response programs (See **Table 41**). They acknowledge that the government has made efforts to mitigate disaster impacts, for example, building embankments in some sections in Cua Dai Beach, Thu Bon River, Co Co River to protect land from erosion. Besides the weather forecast system, before flooding/typhoon events, enterprises receive an official letter from the Bureau of Trade and Tourism to inform them about possible disasters, requesting the enterprise to prepare to respond. Sometimes, businesses are invited to meetings to discuss disaster preparation and climate change.

Table 41: Business's knowledge of government disaster response program

Category	Number of business	Percentage
Businesses knowing about the programs	31	77.5%
Businesses not knowing about the programs	6	15.0%
No comment	3	7.5%

However, there have been no support programs for the business sector from local government and authorities on disaster response. So far, each business prepares and manages their own disaster response. **Table 41** shows the results of business satisfaction concerning emergency

response efforts by the government. As indicated, 78% of those interviewed are moderately to highly satisfied with government programs, whereas 11% are not satisfied.

Table 42: Business satisfaction regarding government emergency response programs

Scale (1 very low-5 very high)	1	2	3	4	5	No comment
Number of business	1	3	15	8	8	5
Percentage	3%	8%	38%	20%	20%	13%

Several of those interviewed made the following recommendations for improving disaster response:

- Organize training courses to build capacity for business sector on disaster preparedness.
- Unify the embankment system for Cua Dai Beach to provide systematic protection from erosion. So far, the government has built an embankment for the public beach section only that has consequently affected the beach area of resorts (private sector). One resort said that cost of embankment work is too high so that they cannot afford to do it alone but they are happy to contribute to fund this work.

Business response to supporting a Climate Change Fund

A clean environment is valued most by all enterprises. According to them this is prerequisite condition for tourism. A clean marine environment and maintaining rural life are also top priorities as these are the major appeal of Hoi An.

However, the level of interest to support a Climate Change Fund for implementing mitigation measures is varied among the surveyed businesses. Almost two-thirds (62.5%) support this initiative with 27.5% not agreeing while four businesses (10%) have no comment. Many enterprises said that they hesitate to say yes or no at this stage because the purpose of a Climate Change Fund is still not clear to them. At this time there is no clear plan as to government's use of this fund. Enterprises will only pay if they see benefits to themselves. 7 respondents proposed to contribute amounts ranging from VND500,000(US\$23) per year to VND10,000,000(US\$476) per year. Therefore, the mean value that business would be willing to pay into a Climate Change Fund is VND4,614,286 (US\$219) per year.

Public Perception Survey - Residents

Social research conducted with commune officials, residents and those living along the Co Co River found that the river is the source of a variety of livelihoods and raw materials for craft production and housing materials. Fishing, fish farming in the river, raising ducks and growing vegetables for daily sale are common activities in and along the Co Co. Flooding is also an issue for the residents. The project is proposing a "soft edge" approach (i.e. no hardscaping with walls) for the embankment work, allowing livelihood activities to continue as before. There will be no significant social impact from this work.

The recent disasters caused by the large tsunamis in Japan and in Indonesia have caused safety concerns among the residents of peri-urban wards and communes. Many feel the area lacks

sufficient roadways to ensure possible escape routes should such a disaster threaten Hoi An. Focus group participants recommended that such routes be constructed. The road connecting the CoCo new urban area with the Cua Dai Bridge will provide an escape route as well as an additional access route to areas outside of Hoi An. Provincial Highway No. 608 will be raised to function both as an embankment for Lai Nghi Reservoir and as an evacuation route for serious flooding. The involuntary resettlement impacts due to the construction of these roads and the new CoCo urban area has been addressed in the Social Safeguards section of this report. Social research by the Social/Gender team found that peri-urban residents are willing to relocate for the good of the area, assuming that appropriate compensation is provided.

The construction of the road connecting the Co Co new urban area with the Cua Dai Bridge will pass through Cam Thanh Commune and is viewed by commune officials as potentially compromising the commune's efforts to generate eco-tourism opportunities and products. The Public Perception Survey conducted with hotels and tourism operators found that 75% of respondents agree with government priorities in urban planning. In their opinion, it is important to expand urban areas to create opportunities for jobs and income generation in the more rural areas, thereby also reducing the pressure of the high concentration of local people and tourists in the ancient town. However, along with urban development, respondents feel it is essential to preserve the rural feel of Hoi An and its harmony with the natural landscape. There is a fear that urbanization will destroy the ecological system in Cam Thanh. From the perspective of tourism operators, it is best to develop Cam Thanh as an ecotourism site with rural landscapes and lifestyles. The social impact of this component of the project will depend significantly on the approach towards construction of the Cua Dai Bridge road and the care that is taken to limit environmental and social impacts.

PhapBao is a retention basin located in the urban area of Hoi An city. Over the years the basin has suffered from siltation, raising the level of the basin bed. At present PhapBao is used by informal gardeners to grow a variety of vegetables. During the wetter months, PhapBao once again fills with water and is home to a myriad of frogs. Dredging PhapBao will provide additional water storage during heavy rains and retain potential flood waters which will be a positive economic and social impact for those who in previously years have faced heavy flooding. A negative impact will be experienced by the informal gardeners, as they will lose the garden land they have used in the past. These impacts were explored by the Involuntary Resettlement team and are referenced in the Social Safeguards segment of this report.

Resident response to climate change

In the context of more extreme weather patterns, in order to protect production activities and the health of their families, the local residents have applied a number of measures to adapt to the weather conditions. Some adaptation measures in people's daily lives and production are shown in [Table 42](#).

Table 43: Adaptations to Climate Change

Issue	Adaptation method
<i>Hot weather adaptation</i>	Local people have applied the following measures according to the economic conditions of each household: - Installed heat-resistant equipment. The wealthy households often

	<p>buy air conditioners and fans. Poor and average households buy electric fans. Electricity bills increase but they must accept this to ensure the health of their families.</p> <ul style="list-style-type: none"> - The trend is for wealthy households to build taller houses with thick walls and tiled roofs. - The average income households replace their house roofs with tiles. The poor households cover the roofs with leaves or place polyethylene bubbles or cardboard under the roofs for insulation. They also consider wind and storm resistance when building houses by using braced frames, trusses, triangle trusses. - Storing water: wealthy households often purchase water filters to ensure water quality for domestic use. - Growing shade trees in home gardens and public areas in the villages/ neighborhoods. - Walking along the beach in the morning or evening.
<i>Adaptation in crop cultivation</i>	<ul style="list-style-type: none"> - Adjusting the seasonal calendar; reducing spring-summer rice crop; starting winter-spring rice crop earlier in November instead of December as previously. - Converting long-period rice varieties (120 days) to the shorter-period rice varieties (95 days) to avoid early flooding. - Increasing watering for the plants and choosing the best watering time, for example, late-night watering.
<i>Adaptation in aquaculture</i>	<ul style="list-style-type: none"> - Careful treatment of the lake before stocking. - Creating a good water system. - Regular monitoring of salinity.
<i>Adaptation in fishing</i>	<ul style="list-style-type: none"> - Closely monitoring the weather forecast. - Equipping ships with radios and navigational and communication equipment for receiving updated weather forecasts.

Resident response to Climate Change Fund. According to the residents, it is a good idea to develop a Climate Change Fund for implementation of mitigation programs of the effects of climate change, but it is very difficult to maintain this fund in the community. Currently, the local people pay into many funds (“gratitude fund”, “national security fund”, “child care fund”, “disaster prevention” fund, “women’s union fund”, etc.) To get consensus of the local people on supporting a Climate Change Fund, clarification is needed as to how the fund will be used, what benefits it can bring to the local people, and the mechanisms for monitoring the use of funds. 80% of respondents said they only could afford a maximum contribution of 15,000 VND/year/household and suggested that the Government should have a mechanism to collect funds from the business sector because their activities have greater impact on the environment. Duplication between funds should be avoided: the water fee already includes a fee for protection of the natural resources and the forest environment. According to residents, if a Climate Change Fund exists, it should be funded through a deduction from monthly water fees or be integrated into the fund for disaster prevention and relief.

In residents’ opinion, the priorities of a Climate Change Fund should be:

- Investment in improved water supply systems and wastewater treatment;
- Contributing to reduction of public service costs;
- Investment in environmental protection activities of the city;
- Investments in natural disaster prevention and mitigation; and

- Skill training for the communication staff and raising people's awareness of climate change.

Overall the social impacts of the Climate Change Adaptation – Urban Development components are viewed as positive by surveyed businesses and Hoi An residents and those affected by the work. The project should ensure that any potential impacts on Cam Thanh commune's ecological system are reduced as much as possible. Other mitigation measures and compensation rates will be contained in the Involuntary Resettlement Plan for Hoi An.

3.3.3 Summary of Key Issues

The FG discussions in 6 wards/communes in Hoi An city revealed that the social capital was very high in local communities of Hoi An city. This is an important basis for effective implementation of environmental protection programs and other socio-economic programs in general.

Hoi An is well-known as an ancient city and a tourist center of Vietnam. Hoi An has diverse tourism resources including ancient architectural monuments, craft villages, beaches and islands and the hospitality and friendliness of the local communities. Since Hoi An was recognized as a World Heritage Site by UNESCO in 1999, this city has been fast becoming a popular and attractive tourist destination and highly appreciated in all over the world²⁰. Agriculture, handicraft production, and small businesses are the traditional livelihoods of the people in Hoi An city. Since the development of tourism industry, the economy of this city has been gradually shifted to the structure of tourism and services - industry - agriculture. In 2011, Hoi An welcomed 1.4 million tourists, including 638,029 visitors using accommodation services. The province had 84 accommodation facilities with a total of 3,842 rooms and the occupancy rate of 50.5%. The revenue from tourism and services accounted for 58% of GDP of the city²¹. The development of tourism industry has created the opportunities to develop new livelihoods and create jobs and income for 5,000 direct laborers²² and 12,500 indirect laborers²³. It has also helped to preserve the architectural heritage of the city and promote handicraft production and small businesses such as textiles, lantern making, and pottery while contributing to the development of infrastructure and urban environmental services, bringing benefits for local communities.

Evidence of direct climate change impacts i.e. heatwaves, flooding, storm events leading to changes in the urban environment such as fresh water supply, pollution, and changes to the biological system i.e. crop productivity, increased incidence of water borne diseases leading to social, economic and demographic disruptions i.e health impacts, higher costs of living, damage to infrastructure. It is evident from the descriptions of climate change impacts and the challenges facing city governments that there is a need for mechanisms and tools which can be used to examine differential social impacts of climate change within a policy and practice framework. Climate change initially will affect society disproportionately, with the poor more at risk due to livelihood and cost impacts. But economic systems (tourism operations, marketing agents, etc.)

²⁰ Wanderlust magazine readers voted Hoi An as the best destination out of 10 highest-ranked destinations in the world

²¹ Socio-Economic Report of the People's Committee of Hoi An city in 2011

²² Number of formal employees in the tourism business establishments

²³ Labor from the indirect product and service suppliers for tourism industry and unskilled workers

will suffer in the longer term, leading to downward spirals in local economies, thereby increasing poverty at all levels.

4. Stakeholder Communication Strategy and Participation Plan

4.1 Stakeholder Analysis

Stakeholder analysis is the process of identifying and exploring stakeholders' interests. ADB recognizes that meaningful participation of all stakeholders promotes equity and inclusiveness, a development approach anchored in Strategy 2020. In ADB-assisted operations, stakeholders fall into three main groups: government, the private sector, and civil society (including affected people). Civil society is the realm of public activity outside of government and the private sector. Civil society participation engages this diverse range of stakeholders in development activities. In particular, it enables the inclusion of the poor, women, and other potentially marginalized groups, not commonly involved in decision-making that affects their lives. Civil society participation is also fundamental to strengthening relations between states and their citizens and building institutional accountability.²⁴

The project is considered complex and therefore the list of project stakeholders is extensive, including the EAs (Quang Nam and QuangBinh PPCs), the IAs (Quang Nam Water Supply Company, URENCO) as well as other relevant city department divisions such as Natural Resources and Environment (DoNRE); Health (DoH); Labour, Invalids and Social Assistance (DoLISA); Emergency Measures and City Administrative Units for Environment and Social Affairs. Other stakeholders include socio-political organizations (VN Women's Union), local authorities and residents at the commune/ward level, agricultural collectives and specialized irrigation service providers such as the Irrigation Management Board in Dien Ban district which provides irrigation to Hoi An wards/commune farmers and collectives.

Businesses and quasi-private government agencies in both locations are also important stakeholders as their use of the services to be improved will assist in loan repayment. They also are important players when it comes to water use and conservation. [Table 43](#) lists the Project stakeholders.

²⁴ *Strengthening Participation for Development Results – An Asian Development Bank Guide to Participation*. ADB 2012.

Table 44: Stakeholder Analysis

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
National Government				
Ministry of Finance	Type and Sources of Project Financing	Ability of project beneficiaries to repay project investment	Line Ministry - Govt of Vietnam budget	State Financial Management
Ministry of Planning and Investment	Type and Sources of Project Financing	Ability of project beneficiaries to repay project investment	Line Ministry - Govt of Vietnam budget	State management of planning and investment
Vietnam Development Bank	Type and Sources of Financing	Ability of project beneficiaries to repay project investment	Govt of Vietnam budget	State Bank for development investment and export
State Bank of Vietnam	Type and Sources of Financing	Ability of project beneficiaries to repay project investment	Govt of Vietnam budget	Central Bank of Vietnam
Donors/International Agencies				
UN Habitat	Hoi An Eco-city	Climate change adaptations and mitigation	UN funding and donations	United Nations Agency for human settlements
World Bank	Dong Hoi Wastewater Component	Urban infrastructure and climate change adaptations	Member investments	International development agency
JICA	Hoi An Wastewater System	Urban infrastructure and climate change adaptations	Govt of Japan budget	International development agency of the Japanese Govt
Kexim	Hoi An Infrastructure	Urban infrastructure and climate change adaptations	Govt of Korea budget	International development agency

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
French Ministry of Finance	Hoi An Wastewater	Urban infrastructure and climate change adaptations	Govt budget	International development agency
Norwegian Aid	Hoi An Water Supply	Urban infrastructure and climate change adaptations	Government of Ireland budget	International development agency of the Government of Ireland
Provincial Governments				
Quang Nam and QuangBinh Provincial Peoples Committees (PPC)	Increasing tourism economic benefits and quality of life improvements to province	Environmental and service issues may impact the tourism industry	Govt of Vietnam - budget	Provincial government management structure
Dept. of Finance	Type and Sources of Project Financing	Ability of project proponents to repay project investment	Line Ministry –Quang Nam Provincial Budget	Provincial financial management
Dept. of Planning and Investment	Type and Sources of Project Financing	Ability of project proponents to repay project investment	Line Ministry –Quang Nam Provincial Budget	Provincial management of planning and investment
Dept. of Transport	Improvement of road network	Road system inadequate for flow of traffic and evacuation	Line Ministry –Quang Nam Provincial Budget	Provincial management of transportation
Dept. of Construction	Urban infrastructure related	Climate change impacts on public investments	Line Ministry –Quang Nam Provincial Budget	Provincial construction supervision
Dept. of Health	Water borne disease vectors related to climate change	Potential increase in levels of dengue, diarrhea and other water related illnesses	Line Ministry –Quang Nam Provincial Budget	Provincial public health
Dept. of Natural Resources and Environment	Project related land and	Climate change impacts on water resources	Line Ministry –Quang Nam Provincial Budget	Provincial management of natural resources, land

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
	environmental impacts			administration and environment
Dept. of Agriculture and Rural Development	Climate change impacts on rural livelihoods	climate change agricultural adaptations	Line Ministry –Quang Nam Provincial Budget	Provincial management of agriculture and rural development
Provincial Govt Agencies - IAs				
Quang Nam Drainage and Water Supply Joint Stock Company	Water supply and wastewater systems	Source of water supply, coverage of piped water and wastewater services	Project investment funds	Provide quality water supply and wastewater treatment.
URENCO	QuangBinh wastewater company	Urban services	Project investment funds	Provide wastewater collection and treatment services
Quang Binh Water Supply				
Hoi An City Government				
Hoi An Peoples Committee	Improved services for visitors and residents and appropriate climate change adaptations	Climate change affecting water supply, disaster frequency and livelihoods	Government budget	Manage city departments and affairs
Ward/Commune Peoples Committees	Improved services for residents	Climate change affecting water supply, disaster frequency and livelihoods	Government budget	Manage ward/commune departments and affairs
Relevant divisions of provincial departments	Improved services for residents and visitors and appropriate climate change adaptations	Climate change affecting water supply, disaster frequency and livelihoods	Government budget	Manage specific government activities and provide services to residents of Hoi An area.
DARD Irrigation Pumping Stations	Improved water source and supply for irrigation	Salinity, increased temperatures, weather	Government budget	Supply irrigation water to users along channels

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
		events affecting farmers		
Civil society				
Women's Union at city and ward/commune levels	Improved livelihoods and living conditions for all residents, improved ward/commune environment	Promote climate change awareness but need follow on programs to promote mitigation measures	Government support and membership fees	Represent members interests and needs and promote national gender policies and programs.
Agricultural collectives	Increased economic return for agricultural workers	Year-by-year issues with irrigation effectiveness, depending on quantity and quality	Membership fees	Represent members needs
Poor female and male farmers	Increased economic return for agricultural workers and improved water supply at home.	Climate change affecting livelihoods. Adaptations not always successful. Affordability of services.	Public pressure, input into commune/ward structures.	Represent own needs
Female and male ward/commune residents	Improved water supply and wastewater services to improve home environment	Own well water supply is unsatisfactory for all uses, wastewater is untreated and health impacts are being felt. Payment for wastewater services without service delivery.	Public pressure, input into commune/ward structures.	Represent own needs through ward/commune structures
Private Sector				
Tourism facility operators	Increasing number of tourists using facility	Access to quality services at a reasonable cost. Payment for wastewater services without service delivery.	Self generated income	Private sector development and economic success
Tourism	Increasing number of	Maintaining clean	Self generated income	Private sector

Stakeholder Group	Stakeholder Interest	Perception of Problem	Resources	Mandate
experience/product providers	tourists paying for experience/product	environment on land, in the communes/wards and on fresh/salt water. Payment for wastewater services without service delivery.		development and economic success

4.2 Participation Plan

In ADB participation encompasses four main approaches: information generation and sharing, consultation, collaboration and partnership. These cover a range of relationships in which the different parties' level of initiative and activity vary. A participation plan involves systematically deciding which stakeholders to engage, how, and when throughout the project cycle. The approach and depth of participation vary depending on the development context and activity, but several core principles remain constant:

- *Promote accountability and transparency:* Participatory mechanisms hold decision makers accountable to their stakeholders. They promote communication and openness about activities, and transparency in the objectives of participation and degree of stakeholder influence.
- *Allow for participation at all levels:* People participate at any and all levels of decision making (policy, program, and project) through timely, flexible activities that suit their skills, abilities, and interests.
- *Make participation accessible to all:* All people are valued equally, opportunities for participation are adequately communicated and offered fairly, and barriers that stop particular groups getting involved are challenged.
- *Value diversity:* The diversity of people's experiences, backgrounds, beliefs, and skills offer a unique resource for society. Celebrating and capitalizing on this is key to participation.
- *Ensure participation is voluntary:* People involve themselves in decision making because they believe in the importance of issues at stake and that their participation will make a difference. Avoid coercion.
- *Encourage stakeholders to create their own ideas and solutions:* In community-led participatory approaches people take action themselves in ways they choose.²⁵

Table 45 shows the proposed Participation Plan for project implementation.

²⁵ Ibid.

Table 45: Participation Plan

Stakeholder Group	Objective of their involvement/ included	Approach to participation depth	Participation methods	Responsibility	Timeline		Cost estimate
					Start	End	
Ministries/Line Agencies including MPI, MOF, MOC, MONRE and SBV. EAs (PPC), IAs (CPCs), PMUs	Policy and programme coordination; Problem resolution; and Optimizing common interest and opportunities	Partnership (high)	Project Steering Committee – milestone meetings and regular meetings to coordinate implementation of the Project and provide policy guidance. Informal Project Discussion Groups as required.	EA/IA/PMU	PPTA phase and Project commencement	Project completion	Included in Project amount
EAs, IAs, PMUs,	Project planning and implementation and monitoring, Project consultant selection and management; and Project implementation – procurement, management and monitoring.	Partnership (high)	Sub-Project Steering Committees and Progress Mtgs; and Sub-component design, management and monitoring meetings.	EA/IA/PMU	Project commencement	Project completion	Included in Project amount
EAs, IAs, PMUs, DONRES, WU, Ward/Commune and Project Affected Persons (PAP)	Develop sub-component detailed designs and community public meeting schedule to disclose designs. Develop gender sensitive	Consultation (medium)	Full disclosure in accordance with ADB Guidelines and GoV regulatory context, including formal notification procedures, traditional	EA, IA, PMU, DONRE, Ward/Commune	Project commencement Prior to	Project completion	Included in Project amount

Stakeholder Group	Objective of their involvement/ included	Approach to participation depth	Participation methods	Responsibility	Timeline		Cost estimate
					Start	End	
	<p>IEC material.</p> <p>Disclose updated RPs, IEE, GAP & EMP.</p> <p>Solicit feedback environmental issues/ concerns for final IEE & EMP & sub-component design.</p> <p>Obtain active participation in EMP implementation.</p>		<p>advertising and use of GoV, ADB and Project web-sites.</p> <p>Public meetings, project meetings</p>		project commencement for disclosure of approved IEEs & EMPs and EIARs & EPCs		
EAs, IAs, PMUs, Ward/Commune and Project Affected Persons (PAP)	<p>Persons who will be affected through land acquisition regardless of tenure status.</p> <p>Poor HH among affected HH who might suffer disproportionately or face the risk of being further marginalized due to the project.</p> <p>Poor HH are entitled to participate in the Income Restoration Program whatever the scale of impact they suffer.</p>	Consultation (medium)	<p>Public meetings and FGD will be held with all AHs during the updating and implementation of RP, IEE and GAP in accordance with ADB Guidelines and GoV regulatory context, including formal notification procedures, traditional advertising and use of GoV, ADB and Project web-sites.</p> <p>Detailed Needs Assessment Workshop will be held to identify choice of income restoration measures</p> <p>Poor and SA HHs will receive training on agriculture and micro credit and other types of assistance measures</p>	EA, IA, PMU, CLFD; Ward/Commune	Project commencement	Project completion	Included in Project amount

Stakeholder Group	Objective of their involvement/ included	Approach to participation depth	Participation methods	Responsibility	Timeline		Cost estimate
					Start	End	
EAs, IAs, PMUs, WUs, Ward/Commune and Project Affected Persons (PAPs) Civil society project beneficiaries	Social Development–Reconfirm design, implement and monitor, GAPs, Stakeholder Communication Strategy and other social development initiatives	Consultation (medium)	Consultations with community stakeholders to review community needs, develop programme, establish community participation process and design and implement priority actions Incorporate outputs into other aspects of Project where appropriate (eg capacity building)	EAs, IAs, PMUs, and WUs	Project commencement	Project completion	Included in Project amount Other budgets separately identified
WUs, EAs/PMUs, female and male farmers and commune/ward residents, irrigation providers	Capacity building for: (i) Climate change and community adaptations including water use efficiencies and conservation and (ii) Monitoring of CC impacts.	Collaboration (high)	Capacity building through training courses, workshops and demonstration sessions.	WUs, EAs, IAs PMUs	Project commencement	Project completion	Included in Project amount Other budgets: Affordability Fund Facility USD 400,000 (USD 200,000/VW U/city)
EAs/IAs/PMUs, private sector tourism enterprises, Other businesses	Capacity building for water use efficiency and conservation measures, including Cleaner Production assessments and programs	Collaboration (high)	Capacity building through training courses, workshops and demonstration sessions.	EAs, IAs, PMUs	Project commencement	Project end	Included in Project amount
EAs, IAs, PMUs, DONRES, WU,	Ensuring compliance through Project monitoring	Collaboration (medium)	Measuring compliance as per sub-project	EAs, IAs, PMUs,	Project commencement	Project completion	Internal monitoring

Stakeholder Group	Objective of their involvement/ included	Approach to participation depth	Participation methods	Responsibility	Timeline		Cost estimate
					Start	End	
Ward/Commune	and evaluation.		performance monitoring system and DMF; Consultative meetings awareness raising programs as appropriate Links to community reporting and complaints made as per grievance redress mechanism.	DONREs, CSOs, Ward/Commune	ent		cost incl. in capacity building budget for each sub-project.
Ministries/Line Agencies including MPI, MOF, MOC, and MONRE. EAs, IAs, PMUs, CSOs,	Benefit monitoring and post-evaluation of Project and Sub-projects and Assessing perceptions about project achievements and failures.	Collaboration (high)	Measuring Project/Sub-project achievements tested against DMF objective and performance target indicators; PCR completed and submitted	MPI/EA/IA/PMU/ADB	On-going	Project completion	EA/IA/PMU/ADB

4.3 Stakeholder Communication Strategy

The Stakeholder Communication Strategy is based on the principles of transparency, timeliness, meaningful participation, and inclusiveness. The strategy ensures that vulnerable groups, such as the poor and women, who risk being marginalized are provided with opportunities for communication and feedback during sub-project design and implementation. Key stakeholders, who are essential to engage to achieve project objectives and lessen project specific risks and challenges, have been identified. Stakeholders include (i) government agencies responsible for the design, management and implementation of the project as well as disaster preparedness and response; (ii) utility companies who provide essential in urban infrastructure services and facilities; (iii) civil society organizations who assist with community education activities, provide pro-poor support programs and are involved in disaster response measures; and (iv) private sector entities who provide employment through tourism. The strategy is designed to ensure a regular flow of project activity and timeline information to and from project beneficiaries and Project Affected Persons (PAPs) and to enhance climate change knowledge, adaptation measures and emergency responses.

Table 47 outlines key project stakeholders and their interests; and identifies key messages, means of communication, and timeline of delivery during the project cycle. The strategy is designed to be inclusive – WU and Farmers Cooperatives will provide information to poor households and poor farmers, particularly women, who are otherwise difficult to reach.

Table 46: Stakeholder Communication Strategy

Objective	Key Risks/ Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources (Human, \$)
Ensure a regular flow of project activity and timeline information to project beneficiaries and Project Affected Persons (PAPs). Invite Feedback. (2 way communication)	<p>Communication timing too late for realistic feedback on activities and proposed timelines</p> <p>Ineffective implementation through badly designed communication products and activities</p> <p>Lack of professional communication support either within agencies or from outside contracted specialists</p> <p>Feedback not addressed</p>	<p>Civil society project beneficiaries</p> <p>Project Affected Persons</p> <p>Commune/ward officials</p> <p>Women's Union</p> <p>Agricultural cooperatives</p> <p>Private sector</p> <p>Local government</p> <p>Local media</p>	<p>Project design, key project benefits, implementation arrangements, potential project impacts both positive and negative</p> <p>Planned mitigation measures (including compensation rates, entitlements and grievance redress mechanism)</p> <p>Project Progress</p>	<p>Project design workshops, seminars and public meetings in communes/wards. Feedback communicated to PMU.</p> <p>Gender-sensitive audio and visual materials developed</p> <p>District Resettlement committee meetings and/or meetings with Project Affected Persons (PAPs)</p> <p>Information in Vietnamese language through: (i) traditional forms, including information booklets/sheets; (ii) local media and public notices; and (iii) recognized web-sites, including Project web-site.</p> <p>Bimonthly project progress reports delivered at commune/ward level. Feedback communicated to PMU.</p>	<p>Ongoing prior to implementation of activities,</p> <p>Project detailed design,</p> <p>Ongoing during civil works</p>	<p>EA/IA/PMUs</p> <p>WUs</p> <p>Wards/Communes</p> <p>Agricultural cooperatives</p>	Included in Project amount

Objective	Key Risks/ Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources (Human, \$)
				WU/Agricultural cooperative disseminate information to poor farmers/HHs through their network. Feedback communicated to PMU			
Enhance climate change knowledge, adaptation measures and emergency responses	<p>Climate change knowledge is not disseminated to those experiencing the greatest impacts</p> <p>Climate change knowledge does not lead to adaptation and mitigation, especially among the poor and vulnerable</p> <p>Investments are not made in improved emergency preparedness and warning systems.</p>	<p>Civil society project beneficiaries</p> <p>Project Affected Persons</p> <p>Commune/ward officials</p> <p>Women's Union</p> <p>Agricultural cooperatives</p> <p>Private sector</p> <p>Local government</p> <p>Local media</p>	<p>Climate change impacts</p> <p>Details of CC capacity building programs available to local officials and community members</p> <p>CC adaptation case studies, examples, demonstrations, research ongoing.</p> <p>Emergency response measures including early warning systems.</p>	<p>Ward and Commune Meetings - Public Meetings,</p> <p>Information in Vietnamese language through: (i) traditional forms, including information booklets/sheets; (ii) local media and public notices; and (iii) recognized web-sites, including Project web-site.</p> <p>Community preparation and community-level training.</p> <p>Public media campaign.</p> <p>Project capacity development measures and awareness training</p>	Ongoing from Detailed Project Design to project completion	EA/IA/PMUs, WUs, DRM agencies/groups, Agricultural collectives, Wards/Communes, and PAPs	Included in the project amount

Objective	Key Risks/ Challenges	Main Stakeholders	Messages	Means of Communication	Timeline	Responsibility	Resources (Human, \$)
			Conservation of precious water resources				

5. Gender Analysis and Action Plan

5.1 Institutional and Legal Framework

The strong legal and policy framework developed by Viet Nam has been instrumental in empowering Vietnamese women and reducing gender gaps. This environment provides Vietnamese women with a system of rights, including affirmative policies for political participation, property rights, generous maternity benefits, and the right to make reproductive decisions.²⁶ The GOV was one of the first countries to sign and ratify the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW) in 1980 and 1982. Prior to CEDAW, Viet Nam embodied the principle of equality of men and women in the Constitution of Viet Nam. The 1992 amendments to the constitution paid close attention to gender equality considerations.

The newly issued Gender Equality Law provides leverage for addressing priority gender issues. The Law redresses gender disparities in existing laws, calls for gender mainstreaming in public administration, and legislates for the inclusion of temporary measures, such as targets and quotas for women's participation in decision making. The legislation also suggests mechanisms to facilitate the implementation of the Law. The SEDP 2006–10 has adopted an approach to planning that integrates gender equality considerations and indicators into the plan in areas such as agriculture, employment, environmental management, health, and education. The National Strategy for the Advancement of Women to 2010, developed by NCFW and approved by the prime minister, is supported by a five-year plan of action, which identifies priorities related to gender equality in Viet Nam. Finally, small steps are also being taken in the area of gender-responsive budgeting and planning.²⁷

A Gender Equality Department in the Ministry of Labour, Invalids and Social Affairs (MOLISA) was established in 2008 as the national women's machinery. The office of the National Committee for the Advancement of Women (NCFW) which is the inter- sectoral body that advises the Prime Minister on Gender Equality and the Empowerment of Women was relocated from the Viet Nam Women's Union to MOLISA office. MOLISA is tasked the implementation of the Law of Gender Equality, the National Strategy on Gender Equality 2011-202 and the National Programme for Gender equality 2011-2015, as well as reporting on CEDAW. (UN Women's website). According to the Gender Equity law and decrees guiding its implementation, Committees for the Advancement of Women are to be established in line ministries and People's Committees at provincial, district and city levels to guide and promote gender equality in their respective areas.

Vietnam Women's Union (VWU) was found in 1930. The history of VWU is closely attached to the country's history for national independence and development. VWU has a network that operates throughout Vietnam at four administrative levels - central, provincial, district and commune - with a total membership of above 13 million women. Since its foundation, VWU has transformed into a developmental organization, mandated to protect women's legitimate rights and strive for gender equality.

5.2 Women's Decision Making Role

"Closing the Gender Gap" (2012) reports that girls' and women's place in Vietnamese society has significantly improved in the last twenty years. Achievements in the realm of education are particularly striking: census results for 2009 indicate higher enrolments of girls than boys at the secondary and tertiary levels. Economic participation and opportunities have continued to improve for women, relative to men, over the past twenty years. The proportion of females holding positions of power remains low, but has increased dramatically. With respect to health and mortality, life expectancy for both males and females has increased. In contrast, however, there is clear evidence of increasing sex ratios at birth, which indicates accrued

²⁶ Asian Development Bank (ADB). 2005. *Vietnam Gender Situation Analysis*. Hanoi

²⁷ Ibid.

prenatal sex discrimination towards girls. Nevertheless, continued efforts are required to improve women's opportunities for professional advancement and to promote the value of daughters.²⁸

The proportion of women relative to men in powerful positions is an excellent measure of the gender gap. The *Global Gender Gap Report* uses this indicator to explore the gap between men and women in opportunities for professional advancement. Results for Vietnam indicate that 77 percent of these positions are held by men in 2009, but women have made significant progress between 1989 and 2009. For the entire country, only one worker in six in these positions is a woman in 1989, but nearly one worker in four is a woman by 2009. There are slightly more women in these positions, relative to men, in urban areas than in rural areas, although the difference remains small. With respect to economic participation, women play an important role in Vietnam's labour force, but opportunities to occupy positions of power remain limited, despite some progress between 1989 and 2009. Economic participation is a domain where more initiatives are required to provide women with more opportunities to contribute economically. The *World Gender Gap Report* shows a clear correlation between women's economic opportunities and average income. The narrower the gender gap in economic participation, the higher the incomes.²⁹

It has been estimated that female participation in local politics is less than 20 percent of official positions at local People's Councils, and sometimes much lower (Le Cong Thanh 2008). Women's involvement in local Committees for Flood and Storm Control is often limited to asking them to be in charge of child-care or food distribution and sweeping and clean up, and they are not encouraged to take a more active role in overall decision-making (UNDP 2009).

Evidence suggests that the people who are most vulnerable to the social impacts of climate change are likely to be those people living in places at risk, those who are socially deprived (e.g. by poor health, low income, inadequate housing or lack of mobility) and those who are disempowered by lack of awareness, adaptive capacity, support services and exclusion from decision-making.

5.3 Gender Issues related to urban services and climate change in the Project Areas

The project will benefit approximately 206,000 residents (50% of them are women and girls) who will be water supply users (Hoi An), wastewater system users (Dong Hoi), be protected by flood mitigation structures such as elevated roads, water retention basins, waterway embankments in Hoi An and repaired dykes in Dong Hoi and benefit from coastal erosion control. Tourists visiting the cities will benefit from improved urban environment and water/wastewater systems.

2012 poverty rates in Hoi An and Dong Hoi are 2.15% and 1.72% respectively, compared to the national poverty rate of around 12%. While poverty rates in the two cities appear to be low, social research indicated that female and male residents of Hoi An and Dong Hoi are facing serious climate change impacts with searing high temperatures, lower agricultural productivity and income, household cost of living increases due to use of cooling devices, additional costs for climate change mitigation measures, increased incidence of water borne diseases as well as other environmental health concerns.

Poor female headed HHs (330 HHs) made up 51.8% of the poor HHs in Dong Hoi in 2011. The absolute number of poor households decreased in Dong Hoi in 2012 from 636 to 535, increasing the proportion of poor female headed HHs to 59.1% of poor HHs. In Hoi An in 2012 the poverty rate was 2.15% or 451 households, a decrease from 613 HHs the year before. Figures from the Hoi An city department of Labour, Invalids and Social Affairs indicate that 179 poor HHs or about 40% of poor HHs are female headed. Poverty rates range from a low of 0.00% in Minh An Ward, located in the Old Town of Hoi An, to a high in Cam Kim Commune, a wood carving and furniture making commune.

Stakeholder consultations revealed climate change impacts on women in Hoi An. As women often manage family' expenditure, they worry that unstable and/or even lower incomes are affecting their economic health. Women's groups in fishing villages in Cam An and Cua Dai Wards said that traditionally they relied on their husbands for their family income. Men went fishing and women worked as housewives to take care of children and family. Nowadays, income from fishing isn't enough for a family and women often have to go out to look for work outside the home. Due to their low education and middle age, they say they face difficulties

²⁸ *Closing the Gender Gap in Vietnam: An Analysis based on the Vietnam Censuses 1989, 1999 and 2009.* Belanger et al. 2012. ODSEF

²⁹ Ibid.

in finding jobs. Those who get jobs are working at low status jobs at hotels/resorts such as house-keepers, kitchen assistant or other type of cleanup activities.

FGDs in both cities showed that female respondents are more conscious about impact of changeable weather on health and more responsible for the care of sick family members. The female respondents in Cam Ha commune, Cam An ward said that the health of local people is affected by extreme weather. Prolonged extreme heat causes sleeplessness and tiredness. Most children and old people are easily affected by this weather increasing the demands on female caregivers during times of heat or flooding.

Flooding also increases demands on females due to their role as homemakers and caregivers. Women must ensure that the family has sufficient stocks of fresh water and food during the flooding season, in addition to trying to safeguard the family possessions, whether these be furniture, livestock, dry goods, shop items, etc. Women generally are responsible for taking children to school, or ensuring that they are safely delivered there. Floods and high water make this task onerous, particularly during heavy rains.

Both female and male respondents express needs for clean water supply and waste water treatment, an important asset for women in particular in their role as primary homemaker. Female respondents proposed that households that belong to both poor and marginalized poor groups should be entitled to concessionary rates for electricity and clean water supply. Both gender groups also worry about instability of economic production and income as a result of climate change. This is especially true of women's groups in fishing villages of Cam An and Cua Dai. The social research undertaken during the PPTA highlighted the importance of women's roles in environmental management, both in the towns, communes and on their own property. The project's objective is to improve access to climate resilient infrastructure and urban environmental services in Dong Hoi and Hoi An. The key poverty and social issues are the need for affordable and sustainable municipal services in light of climate change vulnerability and environmental pressures arising from tourism. Affordable municipal services and climate change adaptation can be viewed as poverty prevention measures, as the economic impacts of climate change can cause those on or near the poverty line to become poor. Through water and wastewater affordability measures and improved flood, erosion and salinity control, the project will contribute to strengthening community and individual resilience while at the same time building capacity in government agencies and socio-political organizations to better manage the environment, plan and prepare for climate change and implement inclusive growth in urban and peri-urban areas. Beneficiaries will include local residents, staff of project related agencies and socio-political organizations, private sector enterprises and visitors to the cities.

5.3.1 Reinforcing the WU role in environmental management and behaviour change

The Public Perception Survey highlighted the high regard in which the VWU in both cities are held concerning the positive results of their environmental management programs. This confirmed findings from individual interviews and focus groups held by the SG team prior to implementation of the survey. The WU in Dong Hoi has been involved in a World Bank funded project that provided loan for women to build or upgrade sanitary facilities. This project also trained women on environmental protection and waste classification. Residents feel that women are more active in environmental issues. Women's Union in Dong Hoi launched programs on "self managed street" that local women is responsible to keep all streets in their hamlet clean. Women and youth also participate in environmental events such as "Earth hour" and "environmental day."

In Hoi An the Women's Union has been very active in the area of recycling, implementing a livelihood improvement project for poor women through the collection and sale of recyclables. The Women's Union's mandate includes environmental protection and environmental awareness raising particularly aimed at women. To accomplish these ends, they use mass media such as the radio and other media such as performing plays. They assign a portion of their communication budget to target environmental awareness raising activities. Recently the DoNRE assigned a budget for the Women's Union to conduct a "Say No to Plastic" campaign. The WU also cooperates with the Cu Lao Cham Environmental Protection Division to help women to change their livelihoods. In the past they relied on fishing but now there is a limit on the fishing area. The focus of livelihood efforts is now on fish processing, producing fish sauce, etc. Because Cu Lao Cham is a closed ecosystem, there is a total ban on plastic bags there.

The Women's Union is not involved in Solid Waste Management (SWM) per se but has initiated a garbage-sorting program to sort inorganic, organic and recyclable materials in 4 pilot wards/commune. In Hoi An there is no company collecting recyclables but there are groups of women who come and purchase these.

To reinforce this important environmental stewardship role, Women's Union staff and selected commune members will be trained by project trainers in climate change adaptation and planning as well as contributing to the design of improved disaster management systems. They will act as community climate change facilitators, supported by their network of WU members at the ward and commune level. This will include the dissemination of the Dong Hoi (incomplete) and Hoi An (complete) Climate Change plans in order to inform the citizenry of government's plans to mitigate the impacts of climate change.

5.3.2 Linking the WU experience with affordability supports

Affordability of government services was a key issue mentioned in all social research forums. This has an impact not just on poor households, but also those near-poor and even middle income households which now find themselves under stress due to increased costs of living, reduced productivity and returns on labour from climate change impacts. The WU in Dong Hoi has experience based on a World Bank project in which the WU managed a revolving fund aimed at supporting poor rural households to improve their latrine and sanitation arrangements, spreading project benefits beyond the urban part of the city. The social research also identified climate change adaptations that are currently being carried out by individual householders to mitigate high temperatures and human health impacts. Some homeowners are also strengthening their houses to better withstand floods and typhoons. These adaptation measures cost money and are a constraint on poor households and those at risk of being poor.

The WU experience in both cities with livelihood support projects and revolving funds will be linked to affordability funds made available through the urban environment and climate change adaptation project. Guidelines for these funds will be developed with the PMUs supported by the national and international gender specialists. Support will go towards wastewater system connections as well as climate change adaptation efforts.

5.3.3 Pro-poor design measures

The project will deliver benefits to poor and vulnerable households through infrastructure improvements (water source security, increased wastewater networks, improved peri-urban services, flood and erosion control and opportunities for participation in sub-component design. Pro-poor design measures (e.g., subsidies and/or socialized tariffs) have been identified (i.e. Decree 88) to ensure beneficiary access to project wastewater systems. Pro-poor livelihood support programs such as recycling will be strengthened. Consultations concerning irrigation water decisions will include poor women farmers, an important stakeholder group.

The project will establish an Affordability Fund Facility to provide low interest, long term loans on a revolving basis. These Facilities will received USD 200,000 each and will be managed by the VWU in each city. The international and national gender specialists will assist with the detailed design during project implementation. Targets for climate change adaptation supports are not yet established and will need additional research during the Project Implementation Detailed Design phase. The targets may also change due to the impact of Typhoon Wutip and other events, which caused widespread destruction in the project area (Wutip struck in late September 2013)³⁰. As identified elsewhere, these events may cause those near-poor or medium income households to slip below the poverty line due to loss of income sources and devastation of other assets (houses, etc.). These funds could also be utilized for wastewater connection support for poor HHs should the provisions of Decree 88 be insufficient.

Targets for these facilities are poor HHs (535 HHs in Dong Hoi, 451 HHs in Hoi An) or those at risk of falling into poverty. The Facility will also support the expansion of the Hoi An Recycling Livelihood Program to include an additional 100 poor women.

³⁰ Wutip made landfall in [Quảng Bình Province](#) on the afternoon of September 30, 2013 with winds of 11 Beauforts. Damage in the affected provinces of Quảng Bình, [Quảng Trị](#) and [Thừa Thiên-Huế](#) was estimated at VND11,000 billion (approximately USD523 million).

5.3.4 Institutional gender analysis³¹

The ADB Country Partnership Strategy (2012 – 2015) highlights the need for institutional capacity building to improve implementation performance and support decentralized project implementation, strengthen government commitment to the sustainability of investments after project completion, as well as for many other reasons. During the PPTA an institutional analysis was conducted to review of the institutional arrangement and identify the main bottlenecks to help to provide a full picture for comprehensive support on institutional strengthening and capacity building program.

Gender Analysis – Implementing Agencies

As a component of the stakeholder analysis a gender training needs assessment was conducted by the PPTA Institutional and Capacity Building Specialists. Staff data for each of the Implementing Agencies was also collected.

Quang Nam Water Supply and Drainage Company

In the parent company, women occupy about 33% of management and senior positions, although the higher positions (general manager, deputy general manager, director) are held by men. The number of men and women in administrative positions is almost equal, with slightly more women holding these positions (17 versus 13). Men far outweigh women in the area of direct labour, with men employed in approximately 80% of these positions with women in the remaining 20%. In the Hoi An branch of the company, men make up about 60% of those employed, with the largest proportion of women being employed as accountants. Fewer women are again shown in the direct labour area, either as administrative staff or as direct labour.

Table 14: Gender and Position of Quang Nam Water Supply and Drainage Company

I. Parent company

Divisions	Male	Position	Female	Position
Management board	27	General Manager Deputy General Manager Director Deputy Director Deputy Division Manager; Accountant	13	Deputy Director Deputy Division Manager Accountant
Administration staff	13	Administration staff	17	Administration staff
Direct labor	161	Meter readers, technicians	34	Cashiers
Total	201		64	

II. Hoi An Water Supply and Drainage Enterprise

Divisions	Male	Position	Female	Position
Management board	1	Enterprise director	11	Accountant
Direct labor	29	Meter readers, technicians	10	Cashiers
Total	30		21	

Institutional Targets. Opportunities for capacity building - 15% of capacity building participants should be women (i.e. all women in managerial and accounting positions plus others that may benefit from career

³¹ Although the Quang Nam and Quang Binh PPCs are the executing agencies, the focus of the Institutional/Capacity Building analysis was at the city and agency level rather than the Provincial Level.

advancement opportunities) from the parent company if capacity building is offered at that level. This could be increased to 30% depending on the organizational and service improvements made under the project. Females in the branch should be included in project sponsored institutional capacity improvements to provide career advancement opportunities.

URENCO

Originally a company named Quang Binh Company of Urban Work was established in 1989. Since May 2009, the company was renamed as Quang Binh One Member Limited Company on environment services and urban development. The company is a state owned enterprise. In addition to administration, there are 6 working units which are units for i) collection and processing solid wastes; ii) transportation team; iii) public lighting team; iv) urban drainages team; v) land fill team; and vi) bio processing bio team.

URENCO's male/female staff ratios indicate a male-dominated agency. All of the managers (16) are male, while females make up all of the accountants (4), including the chief accountant. Of the 62 administrative officers, 11 (18%) are females. The proportion of females employed as direct workers, in the garbage collection teams, is comparatively high at 46% (138).

URENCO

Numbers	Male	Position	Female	Position
Managers	16	General directors, vice general directors, head of administrative divisions, and head of different PMUs	4	Chief Accountant and Accountant
Administrative officers	51	Administrative officers	11	Administrative officers
Direct workers	165	Wastewater /dranage workers, electricity workers and technical; garbage collection and cleaning workers	138	garbage collection team workers
Total	232		153	

Institutional Targets. The QB PPC is responsible for URENCO staffing decisions and can be encouraged to consider gender opportunities for URENCO. All female administrative officers (11) should be included in capacity building opportunities.

Project Management Units

On July 31, 2013, the PMU for the PPTA 1871 of Quang Nam was established with 13 members. It is expected that this PMU will be the same PMU for the project implementation. The current PMU is made of the following members:

Project structure	Position	Qualification
Project leaders		
1	Director	Dr. and Engineer
1	Vice Director	Engineer

Project staff/numbers	Project staffs	
1	Chief Accountant	Bachelor in Economics
2	Project members	Masters in Architecture
6	Project members- two of them are Heads of water supply units in Hoi An and Dien Ban	Engineer
1	Project member	Bachelor in Economics
1	Project member	English degree diploma
13	Total	

On May 09, 2011, the Quang Binh PPC issued a decision to establish the PMU for the PPTA 187132. The structure of the PMU is presented in the table below. This PMU will be expected also to be the PMU for the project implementation in the future, as mentioned by Urenco Quang Binh. According to the staffing qualifications, all the staff of the current PMU have different professional degrees in procurement, project management, project financial management, safeguard and environment, contract management, resettlement and social welfare. This is due to the experience of Urenco Quang Binh in the implementation of the previous WB environment project.

Current staffing of the PMU for the PPTA project in Quang Binh.

Project structure	Position	Qualification
Project leaders		
1	Director	Dr. and Engineer
1	Vice Director	Master in Urban management; Wastewater Engineer
1	Vice Director	Bachelor in economic
Project staff/numbers	Project staff:	
1	Chief Accountant	MBA
1	Project Technician	Wastewater Engineer
1	Project Technician	Construction Engineer
1	Project Technician	Transportation Engineer
2	Project Officers In-charge of Institutional Development	Bachelor in Environment
1	Translator cum Admin	Bachelor in English
1	Translator	Bachelor in English
12	Total	

As of September 2013, 2 PMU staff members were female. Some positions have not yet been filled. Qualified women should be considered for all staffing vacancies to ensure gender balance in the PMUs.

Indicative Training Topics

Topics for training were identified by the Capacity Building Specialist on the Institutional Review team through a series of interviews with various government departments. The following table provides a list of

³² Decision 1015/QD-UBND.

potential topics. The training program will be further focused during the Detailed Design Phase of Project Implementation.

Indicative topics of training for the two projects

Area	<i>Project Management Training</i>	Improving urban environment	Climate change adaptation	Generating direct revenue
Topics of training	<ul style="list-style-type: none"> Project financial and Accounting Management Public Finance management Introduction workshop on urban environment and climate change adaptation Government and ADB Procurement policies and procedures O&M Gender and development Safeguard policy of Vietnam and ADB Economic efficiency analysis for project activities on urban environment and climate change adaptation M&E for Project management and operation 	<ul style="list-style-type: none"> - Community participatory -based urban management - Management of urban environment Solid waste and wastewater management Management and protection of water sources pollution Management of urban air pollution - City planning in the context of climate change adaptation Management of urban sanitation to adapt to climate change 	<ul style="list-style-type: none"> - Management of natural risks - Optimizing urban infrastructure for adaptation to climate change - Formation of a sustainable urban energy system - Construction in a green city - Developing local plan for climate change adaptation - Regulations and new standards in constructions 	<ul style="list-style-type: none"> - Effective management of revenues from wastewater systems - Effective management and saving of fresh water - Result based performance for utility efficiency (WS and WW) - Public Finance Management - Models of green and friendly tourism - Tourism services - Protection of drainage infrastructure.

Capacity Building – Climate Change

The institutional analysis found that in Hoi An: “As to climate change adaptation, as mentioned, Hoi An has several initiatives to make city greener with community participation. However, as to the organizational set up, some issues need serious consideration. There is not yet kind of body to deal with climate change issues of the city yet. Nor is there an official institutional arrangement for dedicated staff to work on climate change issues. The knowledge as well as awareness of climate change issues is very limited at management as well at operational levels. The TA team was informed that there has not been any course(s) related to CC held as yet. The master development plan of the city is expected to be approved soon but does not take into account the impacts of climate change. This is confirmed by study of UN Habitat on Assessment of Hoi An Vulnerability and its Capacity for CC adaptation. This is quite understandable, as a project on assessment of effects of climate change to the master socio economic development plan of Quang Nam was only approved in December 2011.”

As for Dong Hoi: “On October 29, 2012, a decision on the plan to implement the NTP on CCA for Quang Binh in 2013-2015 and budget attached was approved by the PPC of Quang Binh¹⁶. The list approved in this decision indicates specific project/programs which each line department and city/district should carry out and named of the projects. The budget estimated was 1.746.500 mill VND. ...there is not yet any understanding and consciousness by officials of CC issues among officials and local people. In addition, quite a number of policy guidelines on how to integrate climate change issues into sectoral and socio economic development plans are yet to be provided. Since 2010, WB had supported the city in developing an initial local resilience action plan for Dong Hoi (LRAP) with some specific activities to be carried out (and indicative actions for 2015-2020) which needs to be revised/updated. However, it is reported that the plan has not been carried out and is out of date with the current situation. In Dong Hoi there is not any staff working on CC officially yet and two staff working on environment issues, no staff specifically at commune/wards level are working on environment.”

From perspectives gathered during the Public Perception Survey, the need for city government and local population to understand and manage climate change is paramount. This situation provides an excellent opportunity to engage women on the ground floor of climate change capacity building for planning and adaptation. The PMU will be assisted in the design and implementation of this capacity building activity by the proposed *Climate Change Adaptation Specialist* who will develop and apply a series of CC Awareness Interventions as well as training related agencies in CC Adaptation issues and strategies and a *Public Administration and Eco Urban Planner* who will carry out a public administration reform exercise and recommend structural changes and develop an HRM strategy for more effective urban services. The four project focal groups for capacity building will be: Project-appointed Staff, Staff of Collaborating and related Agencies, Staff of Project Implementing Agencies and Staff of Communes/Wards in Cities including staff and representatives of Women’s Union, Youth Union and Farmer’s Union.

At least 50% of new positions created and staffed as a direct result of project capacity building and reform assessments should be filled by women. This is particularly appropriate in the area of climate change, where impacts are disproportionately experienced by females.

5.3.5 Gender Training and Support

TORs have been developed for an International Gender Specialist and a national Gender Specialist to assist in all aspects of gender training and implementation support. The GAP will be reviewed and revised if necessary to align GAP activities with project outputs and support built for GAP implementation through targeted meetings, presentations, workshops, etc. with EAs and other project stakeholders. The specialists will work with Vietnam Women’s Unions to develop guidelines for project supported Affordability Fund Facilities to assist poor households to access project benefits in water supply and sanitary infrastructure and to support poor HHs in climate change adaptation efforts. These specialists will complete a due diligence exercise in each city to determine whether similar revolving funds are already at work and will ensure that there is not overlap of Fund purpose, objectives and target groups. The specialists will also work with the PMU to establish the institutional mechanisms to track progress of GAP implementation and maintain oversight of GAP implementation, identify challenges and weaknesses in implementation and develop strategies to overcome these.

5.4 Gender Action Plan

5.4.1 Social Dimensions

This project is categorized as Effective Gender Mainstreaming (EGM). The GAP focuses on increasing women’s participation in decision making at all levels of urban governance and service provision in Dong Hoi and Hoi An through female participation in project capacity building plans and training sessions. Capacity building will focus on four project groups i.e. Project-appointed Staff, Staff of Collaborating and related Agencies, Staff of Project Implementing Agencies and Staff of Communes/Wards in Cities including staff and representatives of Women’s Union, Youth Union and Farmer’s Union and will be developed based on gender

equity with all sessions comprised of at least 30% women. The Women's Union roles in environmental management and service affordability initiatives will be supported through project Affordability Fund Facilities, to be designed with the assistance of the international and national gender consultants. Women residents of the two cities will benefit from the project through improved access to water resources for irrigation and drinking water supply, increased connections to wastewater treatment systems and enhanced knowledge of climate-resilient household adaptations. The project will implement pro-poor initiatives to assist poor and vulnerable women to access water and wastewater treatment systems. The project will support female government staff and Women's Unions to build their knowledge of climate change impacts and mitigation measures.

5.4.2 GAP Implementation Arrangements

Implementation arrangements and estimated costs of the GAP have been integrated into the overall arrangements and total project budget. Additional costs have been allocated for affordability support funds and consultant interventions. Project Management Units have been established in QuangBinh (URENCO in Dong Hoi) and Quang Nam (the Quang Nam Water Supply Company – Hoi An branch). The PMUs, with guidance from the PPCs and the consultant team, will be responsible for implementing the GAP. The PMU with assistance from the gender specialists will be responsible for monitoring the implementation of the GAP. An international gender specialist (6 person-months) and 2 national gender expert (12 person-months total), together with other consultants, will support (i) gender and development training needs assessments, (ii) gender plan development for focal groups in each city, (iii) development of appropriate training materials, (iv) development of guidelines for Womens' Unions affordability funds to support wastewater connection and climate change adaptation efforts, (v) the establishment of sex-disaggregated indicators for project performance monitoring and evaluation, and (vi) the promotion of gender equality in future hiring practices and promotion initiatives. PMUs will incorporate GAP monitoring in their progress reports to the Government and ADB.

Gender Action Plan

Appendix D – Institutional Review

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Acronyms, Abbreviations & Units

3Rs	Reduction, Recycling, Reuse
ADB	Asian Development Bank
ADF	Asian Development Fund
CC	Climate Change
CCAP	Climate Change Adaptation Plan
CIPR	Construction Investment Project Report
CPC	City Peoples Committee
DOC	Department of Construction
DARD	Department of Agriculture and Rural Development
DONRE	Department of Natural Resources and Environment
DPI	Department of Planning and Investment
DOF	Department of Finance
DMF	Design and Monitoring Framework
DPF	Division of Planning and Finance
DOE	Division of Economics (city level)
EA	Executing Agency
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FMA	Financial Management Assessment
GDP	Gross Domestic Product
IA	Implementing Agency
IEE	Initial Environmental Examination
IPCC	Inter-Governmental Panel on Climate Change
JSC	Joint Stock Company
LDIF	Local Development Investment Fund
LRAP	Local Resilience Action Plan
MARD	Ministry of Agriculture and Rural Development
MOC	Ministry of Construction
MOF	Ministry of Finance
MONRE	Ministry of Natural resources and Environment
MPI	Ministry of Planning and Investment
NTP	National Target Program
OCR	Ordinary Capital Reserve
PAM	Project Administration Manual
PPC	Provincial Peoples Committee
RP	Resettlement Plan
SCCC	Steering Committee on Climate Change
SEA	Strategic Environmental Assessment
UMD	Urban Management Division
UN	United Nations
WB	World Bank

EXECUTIVE SUMMARY

This report provides an insight on the current institutional arrangements in the local administrative governance of the two provinces Quang Binh and Quang Nam. While some issues at the central levels have been identified, the analyses focused mostly on the provincial and city levels in relation to environmental management and climate change adaptation. Since the payment capacity as well as the sustainability of the project will depend much on the institutional environment, and the capacity for public private partnership (PPP) at the national and local levels, the report also includes a chapter on PPP and tries to address the initial views on Public Private Partnership through an institutional analysis of the key potential agencies including the two implementing agencies (Quang Binh Urenco and Quang Nam Water Supply Drainage Company), and the Local Development Investment Fund in the two provinces. The analyses suggest recommendations for the Institutional Development (ID) and Capacity Building (CB), and the next steps to be taken to address the various issues.

Some key findings of the report are presented below :

Vietnam is committed to deal with environment protection and climate change adaptation through its comprehensive legal framework and policies as well as a structured institutional arrangement. Delays in issuing different guidance as well as overlapping responsibilities for urban management, environment and climate change issues at different levels (guidelines of central government are often delayed and do not adequately define the roles and responsibilities of various agencies) have made those policies less effective.

Several ministries as well as the provincial and cities agencies are involved in the development and management of urban infrastructure in addition to environment issues. As such, the responsibilities are divided between MOC, MOT, MARD, MONRE and their corresponding agencies at the lower levels. There is a lack of vertical as well horizontal coordination between the ministries and agencies, which often results to fragmented or conflicting policies and laws as well as in their implementation.

Institutional arrangements for environment and climate change adaptation are officially in place for the two provinces, and provincial action plans for implementing NTP on CCA have been developed. However, the lack of human and financial resources, the limited budget for awareness raising, as well as unclear functions among agencies, are still some of the prevailing issues.

The roles of DONRE and DARD, as well as DOT and the cities, for flood infrastructure and dike system management, environment assessment, and the roles of DOC and DOT in managing urban roads, as mentioned in the MOC circular, also require clarifications. Traditionally for the ODA project/program, DPI plays the most important role in comparison with the other technical departments. For the OCR project, the PPC shall be responsible for the full and timely repayment of the loan as agreed under the

loan conditions. In this case, the role of DOF in the ODA loan project should be established and clearly identified. In addition, close monitoring and strategic guidance from the central government, capacity building on public financial management and accountability of the local leaders, including the developing strategies for the repayment of the project loan, shall be crucial, particularly since this will be the first ever OCR project in urban environment for the two provinces with difficult socio - economic development conditions.

The two implementing agencies for the projects are Quang Binh Urenco and Quang Nam Water Supply and Drainage Company, with the guarantees provided from their respective PPCs. The key issue, however, is that both companies are assigned also by the PPCs to provide urban services to the two cities. Establishing these companies as monopoly service providers would somehow be a potential barrier to competition in the delivery of urban services offered by the private sector. In addition, the PPCs or CPCs often see themselves as service providers rather than clients, and they may be reluctant to have the private sector involved in the management of urban services. There are also no clear guidance yet from the central government on PPP in general, including the specific sectors that this would cover.

Furthermore, the level of autonomy and the roles and responsibilities of the two companies shall require reforms to improve the sustainability of urban management services. There is limited autonomy and responsibility for Quang Binh URENCO since most of their management and operating decisions require approval from PPC, including investments, tariff setting, determining service levels, staff salaries and benefits, maintenance and capital expenditures, and senior staff appointments. The limited autonomy has constrained its ability to operate efficiently, as well as its financial sustainability.

For both cities as anywhere in Vietnam, all activities related to urban environment and climate change adaptation in general continue to be nearly exclusively provided, owned, financed, built and operated by the public sector, either directly through the local authority or by way of a quasi-independent State Owned Enterprise. While most policy implementation guidelines are decided at the provincial level, the related state management and technical agencies at city level are in charge of planning, budgeting, supervising, monitoring and reporting. The public and semi-public utilities, whether they are provincial or city owned, are in charge of implementing all activities/ projects (including O&M) related to water supply and city environment services.

The flooding situation is a primary problem and a major concern in both cities in relation to the climate change issue. For the former, at the provincial, city, and commune levels, quite an extensive network of institutional arrangements are already set up. In contrast to the flood protection issue, the responsibilities for climate change adaptation are not in such a fortunate situation. In Quang Nam, with the support of a Danida program, the institutional arrangements have been improved, in contrast to that in Quang Binh province. At the city level, while Hoi An already has a commitment for 2 officers to work on climate change activities, there are no “official arrangements” yet as to their work responsibilities on climate change issues. No climate change board management for either city has been created so far. For the city of Dong Hoi, no officers have been committed to work on climate change activities and issues both at

the city and commune levels. The situation is much better with Hoi An, as mentioned, where two additional staff will be allocated to work on climate change issues, and the city board of climate change adaptation also will be set up soon. For each commune, there will be one officer in charge of environment issues who could be called upon to work on CC issues as well.

For the two cities, there are quite a number of donor and government funded projects and programs, however there is no agency or any mechanism yet for the overall coordination and information sharing for all the projects/programs funded in UE and CCA. The leaders as well as managers, therefore, do not have access to the full set of information/data from the different projects/program that would be necessary for them to make optimal decisions and plans for the future. Currently, the climate change functions as well as some tasks related to urban management need to be clarified among the technical divisions and public services delivery units. The adequacy of staff resources allocation between technical divisions also need to be worked out.

Based on the analyses done, a package of TAs should be arranged to develop capacity building training programs, including their costs for each city to address their respective issues and improvement needs for Institutional Strengthening. It should be noted that these TAs and the capacity building programs are still at an early stage and these need to be defined in the loan project implementation phase.

This report consists of 8 chapters with the following contents:

Chapter 1	Introduction
Chapter 2	Legal Framework and Policies on Environment and Climate Change Adaptation
Chapter 3	Key Stakeholders Involved in Urban Environment and Climate Change Adaptation and Major Issues
Chapter 4	Public and Semi-Public Utilities, Urban Environment Management Companies and Water Supply and Drainage Company
Chapter 5	Public Private Partnership (PPP)
Chapter 6	Project Management Arrangements
Chapter 7	Conclusions
Chapter 8	Recommendations
Appendix A	Main Mandates of Provincial Technical Departments
Appendix B	Institutional Arrangement in Urban Environment, Climate Change Adaptation and Flooding Protection for Hoi An City
Appendix C	Institutional Arrangement in Urban Environment, Climate Change Adaptation and Flooding Protection for Dong Hoi City

1 INTRODUCTION

1.1 PURPOSE OF THE INSTITUTIONAL REVIEW

This project is the first OCR project that the ADB is providing to Vietnam on urban environment for the two targeted provinces/ cities. The capacity to pay the loan is dependent on different variables. The two important variables are : i) the way the project will be managed after the investment is made, and ii) the capacity and institutional working environment of the agencies and authorities who borrow the loan and manage the projects. All the beneficiaries agree that the working and institutional working environment, and the capacity of the authorities involved in the investment decision making, as well as in managing the investments made, are crucial factors for ensuring the projects' sustainability.

A review of the institutional arrangements to identify the main bottlenecks will help provide an understanding of the comprehensive support needed for institutional strengthening and in developing the capacity building program. These are essential to help the target agencies, not only to manage projects effectively, but also to make these projects sustainable in terms of loan repayment.

The need to review the existing institutional framework for urban development and management, environment improvement, and to identify the policy, institutional, financial, and human resource bottlenecks that constrain effective urban planning, development, and management, and environment improvement, as well as the capacity to pay back the loan are the main purpose of this institutional review report.

1.2 BASIC OPERATIVE ASSUMPTIONS

In conceptualizing this loan, capacity building (CB) and institutional strengthening (IS) were not considered initially to be critical components. However, most stakeholders now recognise that CB and IS shall play critical roles in ensuring that whatever infrastructure is built under the loan, related to UE and CCA, shall be well managed and sustainable. The total loan will be roughly allocated into 60% for Hoi An (about USD 60 million) and 40% for Dong Hoi (USD 40 million), which shall be reflected also in the CB allocation.

The local governments will not borrow money for soft activities, and grant funds would be sourced instead to provide for all CB and technical assistance, which will be piggy-backed to the loan. The IA's will be Quang Binh URENCO company in Dong Hoi and Quang Nam Water Supply and Drainage Company in Hoi An. The analyses below followed the project components identified in the MOU dated September 2013, between ADB and the Government of Vietnam.

Since this will be the first urban project focused on climate change adaptation under a loan agreement between the Government and ADB, they would like to see that the projects demonstrate innovative approaches such as climate change proofing designs in

infrastructure facilities, integrated non-structural measures for flood management and coastal protections. If the projects become successful, these could be replicated as models for the other coastal cities in Vietnam.

1.3 APPROACH AND METHODOLOGY

The team undertook the following process to determine the best possible strategy to ensure that both cities would have the necessary institutional arrangements and capacities to meet the demands of implementing this loan, and address the other environmental and climate change adaptation challenges, but most importantly, be able to take ownership of the strategy.

- 1) Clarified the basic working assumptions (see above) related to ID and CB components.
- 2) Undertook an extensive data gathering process through interactive meetings/interviews, initially with top leaders to obtain general guidance and perceived priorities, and then with all the relevant agencies in both cities. (Summary reports of each meeting/ interview session were prepared and made available.)
- 3) Analyses of all data collected and drafting of general strategy/ inputs/ budgets for institutional adjustments and capacity building for all concerned cities.
- 4) Conducted follow-up meetings with top officials to discuss and explain the TA team findings and draft strategy, etc and finally, to obtain their full commitment.
- 5) Undertook an extensive training needs assessment exercise that identified the detailed breakdown of the priority areas for CB, as well as identified those who should be targeted for the program.
- 6) Proposed a project management arrangement during and after the project implementation.
- 7) Drafted a report on PPP with suggestions for the project implementation in support of this approach particularly for Hoi An project's component on utility efficiency improvement.
- 8) Drafted an overall strategy for the ID and CB component complete with technical assistance inputs, terms of reference, training inputs, and costs breakdown which should be detailed at the loan project implementation phase.

As mentioned above, the team was able to meet with all of the stakeholders and agencies concerned with Urban Environment and Climate Change, including those involved in project management and supervision, particularly at the city and provincial levels. The team had extensive meetings primarily to discuss the stakeholders' and agencies' views related to their own roles and responsibilities, and identified their needs and weaknesses. The outcomes from these visits formed part of this institutional review report. In addition, preliminary summary matrixes which identify the primary institutional

shortcomings, general knowledge, and skills gaps of each agency are presented in have been previously included in the Consultants Interim Report

1.4 PURPOSE & LAYOUT OF THIS REPORT

The purpose of this report are: i) To identify the key stakeholders, the local administration structures, and the relationships among the key urban institutions – in particular, the central related agencies, provincial and city governments, utilities and state-owned companies – along with the related policies, regulations and strategies; and ii) To identify the main policy, institutional, financial, and human resource bottlenecks that constrain effective urban planning, development and management, environmental improvement, as well as the effective and efficient project management and loan repayment; iii) the PPP issues; and v) propose the initial ID and CB program for each city.

The provinces will have to pay back the loan for the project. Given their financial limitations, however, PPP would seem to be the best approach to deal with the OCR loan repayment. For that, the Local Development Investment Funds (LDIF), the two implementing agencies and project management arrangements during and after implementation were reviewed separately in this report.

2 LEGAL FRAMEWORK AND POLICIES ON ENVIRONMENT AND CLIMATE CHANGE ADAPTATION

This section will review the central and local policies/ plans, and institutional arrangements related to climate change and environment.

2.1 CENTRAL LEGAL FRAMEWORK AND POLICIES

Climate change adaptation and environmental protection are becoming crucial and emerging issues for the country so there is an urgent task for the government agencies to take responsibility. The senior government leaders have shown their strong commitment to address these issues through different solutions, including passing a legal frameworks. In 2008 the Vietnamese National Target Program (NTP) to Respond to Climate Change was approved by the Prime Minister¹. Serving as an overall national strategy for addressing climate change issues, the NTP aims to formulate the priority activities to address the urgent and immediate needs and concerns of the country related to the adaptation to the impacts of climate change. The NTP is being proposed to be integrated in the future to the national, sectoral and local

¹ By Prime Minister Decision 158/2008/QD-TTg

socio-economic development strategies² and international commitments. Since then, the NTP has already achieved a number of positive results since its implementation in early 2009. These include the production of Climate Change and Sea Level Rise Scenarios for Viet Nam in 2009 and 2011, led by the MONRE, based on three global emission scenarios; the development of Action Plans by different ministries in response to climate change; and the preparation also of Action Plans the different provinces. Quang Binh and Quang Nam provinces have already developed their respective action plans, and Quang Nam has in fact already approved their plan. However as shown in Section 2.2, there are still a number of issues related to the implementation of the plan in these two provinces,...

On July 13, 2009, the Prime Minister (PM) approved Decision 1002/2009/QĐ-TTg for the program on community awareness raising and community based disaster risk management. In support of these other policies, the National Steering Committee on Storm and Flood Control under the Ministry of Agriculture and Rural Development (MARD) also issued their guidelines to implement the program with the budget resources for its implementation.

On December 5, 2011, the National Strategy for Climate Change (NSCC) was approved also by the PM under Decision 2139/QĐ-TTg³⁴. The strategy outlines the plans for 2016-2020, and the objectives up to 2050, with the vision for 2100. It also identifies the strategic tasks to cope with global climate change. To implement the strategy, a National Action Plan (NAP) on climate change was approved by Government under Decision 1474/2012⁵. The NAP comprises 10 tasks and objectives for 2012-2020, 68 projects and programs up to 2020, and 10 priority projects and programs during 2012-2015.

To address the climate change issues in the urban areas, the NAP indicated the 3 following programs under No 10, 38 and 41:

10. Piloting a model for green urban areas, with a green citizen area to save energy, raw materials and fuel and become climate change friendly.

38. Development of policies and legal framework to promote energy saving in the means of transport; development of public transport means in urban areas; controlling the increasing number of personnel transport; development of bus routes, and encouraging taxis to use compressed natural gas and liquid gas.

41. Applying advanced modern technologies in processing wastes in the urban and rural areas, and applying the composting method for wastes (burying wastes to draw methane gas).

² The NTP RCC requires government agencies (central and local authorities) to develop practical sector action plans to effectively respond to climate change to ensure the sustainable development of Viet Nam, to take the opportunity to develop towards a low-carbon economy, and to join the international community's efforts in mitigating climate change and protecting the climate system.

³ Decision 2139/QĐ-TTg, 2011 on approval of National Strategy on climate change by 05/12/2011

⁵ Decision 1474/2012/TTg on approval of NAP on CC

On September 2012, the Government had approved a National Strategy for Green Growth⁶ in which the green production and green living style and sustainable consumptions are the main areas addressed by this Strategy.

Just last May 2013, the Communist Party of Vietnam had stated that environment protection and climate change issues are the strategic matters and deciding factors to the sustainable development of Vietnam. The Party had approved a resolution on the “*Proactive response to climate change, enhancing the management of natural resources and environmental protection*”⁷. In the resolution, the general and detailed objectives up to 2020 and up to 2050, as well as the concrete tasks to achieve the detailed objective up to 2020 were presented. Among other matters, it also stated that enhancing the capacity of the state managed agencies to deal with these issues will be one of the priority tasks to achieve the objectives of the Resolution.

The Environment Protection Law enacted in 2005 is currently under revision at the National Assembly conference. The main issues will be included in the revised Law that will focus on enhancing the role of environment protection. The enhanced legal framework will include regulations on investigation, control and sanctions that will support the sector inspectors to effectively perform their work on environmental protection. It is expected that the revised Environment Protection Law will be approved this year, 2013.

There are still a number of institutional issues that need to be resolved to implement these mentioned policies. Different related studies have shown that “the perception of communities and some governmental institutes on climate change is a limitation in taking up appropriate activities. Human resources, especially the technical staffs who can guide and manage the process, are limited”⁸ In addition, a number of policy guidance that needs to be issued by the central ministries related to its implementation are still being delayed.

2.2 LOCAL INSTITUTIONAL ARRANGEMENTS AND MAIN ISSUES RELATED TO CLIMATE CHANGE ACTIVITIES IN QUANG BINH AND QUANG NAM PROVINCES

2.2.1 Quang Nam Province and Hoi An City

Quang Nam Province

Quang Nam and Ben Tre provinces are two provinces piloting the implementation of the component on CCA which is in the Framework Program for CC Adaptation and Mitigation that

⁶ Prime Minister Decision 1393/QĐ-TTg on National Strategy for Green Growth

⁷ Announcement of Central Committee of Communist party N XI, date May 13, 2013.

⁸ Regional Synthesis Report MRC Technical Paper No. 24, September 2009: : Results of a climate change ‘gap analysis’ for identifying information deficiencies and shortcomings in planned activities and policy and institutional responses in Vietnam- The Study on Adaptation to climate change in the countries of the Lower Mekong Basin

was funded by DANIDA⁹. A whole organizational structure and institutional arrangement have been set up to implement this component.

A provincial steering committee for the component on CCA (to be called later as the SC) and the Office of CCA were established¹⁰. The chairman of the SC is the Vice Chairman of Quang Nam PPC and the vice chairman is the Director of DONRE. The members of SC are directors and vice directors from various related departments, and vice chairmen of the City and districts of other related agencies. The departments included in the SC are: Information and Communication, Finance, Planning and Investment, Agriculture and Rural Development, Construction, Transportation, Health, Culture-Sport and Tourism, Labour, and Invalid and Social Affairs. The districts and cities included in the SC are 8 of the 13 cities and districts of the Province, among which are Hoi An and Tam Ky. Other agencies also included are: PMU of Cu Lao Cham Sea Biosphere Reserve, and Centre of Weather Forecast and Hydrography (Figure 1).

To support the work of the SC is a provincial office of the CCA component. The staff of this office are those working in the provincial DONRE.

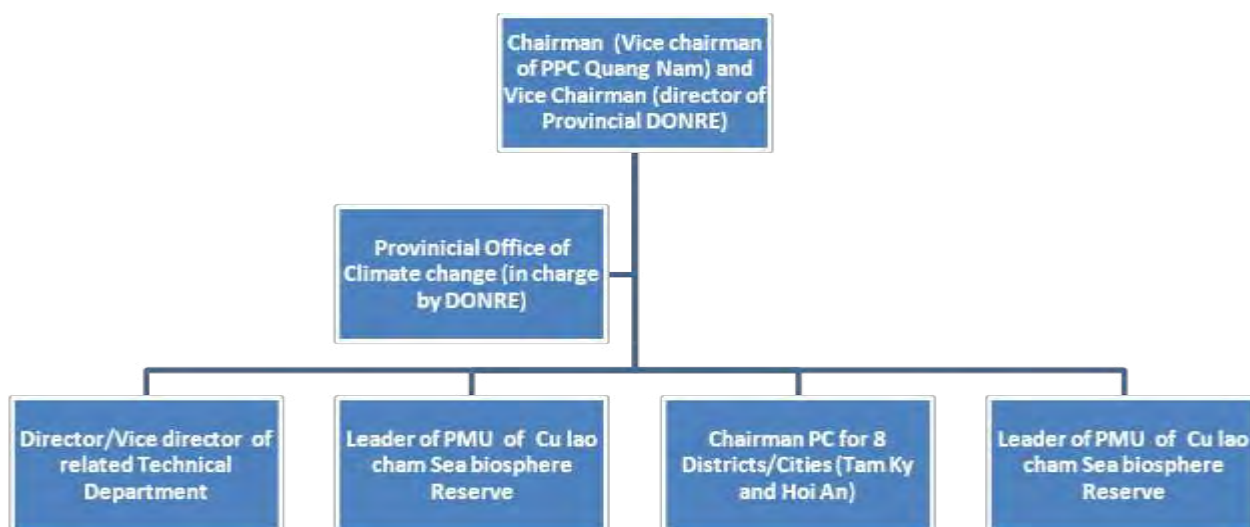
The Provincial Office of CCA has various tasks, among which the most important are:

- Advise the SC in coordinating with the relevant agencies to develop programs/projects related to CCA
- Advise the SC Chairman in coordinating activities with the relevant agencies; to develop related provincial policies on CCA; and implement DONRE related activities on CCA
- Monitor and provide guidelines to the relevant agencies in implementing CCA activities
- Act as the focal point office in receiving documents, and in preparing the necessary contracts for the SC to approve
- Define the objectives and scope of investments for construction project
- Provide the outline and tasks of survey activities
- Report on the results of the CCA activities
- Consolidate the financial budgets of the CCA component that will be submitted to the Department of Finance and the Department of Planning and Investment.

⁹ MOU signed between GOV and DANIDA

¹⁰ Decision 602/QD-UBND, dated February 25, 2011 and Decision 604/QD-UBND, dated February 25, 2011.

Figure 1: Organisational Structure of Quang Nam Provincial Steering Committee on Climate Change Adaptation Component



On December 9, 2011, the list of projects under the NTP of CCA of Quang Nam for 2011-2015 and the corresponding attached budget were approved by the PPC of Quang Nam¹¹. The list approved indicate specific projects and programs which each line department and city/district, as assigned in each corresponding project, should carry out.. As in many provinces of Vietnam, the major issue as reported by the Office besides the lack of resources allocated for investments in the projects, is the relatively small amount being spent for activities on CC awareness raising which is only at 2,4% of the total allocated budget of 151 billion VND¹². So far only one training course on CC awareness rising was organised for all key officials, and the coordination between provincial departments and members were not effective.

Hoi An City

By the end 2011, the UN Habitat in Vietnam, in cooperation with Hanoi University had supported the City to develop a study on the vulnerability of Hoi An to climate change, and review the Action Plan's ability to respond. Once the Action Plan is finalised, it will be submitted to the CPC for their approval.

There is no task force or any coordinating board to work with climate change issues yet. It is expected that the city DONRE will play a crucial role in dealing with the CC adaptation activities of the city. One of the main issues is that the City DONRE is in charge of implementing Project No 4 as indicated in Table 1), since it is in charge of all climate change issues. However, as

¹¹ Decision N 4043/QD-UBND, dated December 9,2011

¹² At the meeting with director of the provincial Office in Climate change dated March 13,2013

mentioned by the leader of the Economic Division, their division was not required to do this work although it has a specialist on forest development, whereas DONRE does not have an appropriately qualified staff.

Table 1: Budget allocated and the list of Projects planned implemented in Hoi An.

		Budget allocated for the NTP CCA Quang Nam (VND)		
		Total	In which:	
			Capital investment	Current Expenditure
A	Total budget allocated for the whole program	151,000,000	132,800,000	182,000,000
B	Total budget for Hoi An and list of projects for Hoi An	11,864,000	7,500,000	4,364,000
1	Assessment of affect of sea raising level to coastal areas			70,000
2	Communication and awareness raising about CC to commune PC			12,000
3	Research study on development of "tourism product" of Hoi An in flooding and raining situation, to be adapted to CC			2,100,000
4	Development and implement master detailed plan of water coconut forest Cam Thanh serving rehabilitation and development of water coconut forest, for a community based bio tourism development		7,500,000	

Source: Provincial Office of the NTP on CCAC of Quang Nam province and the projects list approved by QN PPC decision 4043/QD-UBND.

2.2.2 Quang Binh Province and Dong Hoi City

Quang Binh province

In November 2011, the PPC of Quang Binh issued decision 3073/QD-UBND which gave approval for the Action Plan on CCA and sea rising level (SRL) of Quang Binh for 2011-2015, and the direction for 2020. A list of 61 projects dealing with CCA and SRL, and the implementation budget cost of 6000 billion VND (approximately 310 Mill USD) were included in this decision.

The establishment of a provincial steering committee for CCA and a professional task force were mentioned also in this decision. However the committee and task force have not functioned yet¹³ so there are no activities so far that have been implemented by this committee.

On October 29, 2012, a decision on the Plan to implement the NTP on CCA for Quang Binh for 2013-2015 along with the corresponding budget was approved by the PPC of Quang Binh¹⁴. The decision also approved a list of specific projects and programs for each assigned line department and city/ district to carry out. The total estimated budget for these was 1.746.500 million VND. Besides the lack of financial and human resources allocated to implement the identified projects, there is also the lack in understanding and consciousness on the part of the government officials and the local community on the issues of CC. In addition, a number of policies guidelines on how to integrate climate change issues into the sectoral and socio economic development plans have not been provided yet by the central agencies, like MARD or MPI. The amount spent for activities on CC awareness raising so far was only 0,24% (5 billion VND) of the total allocated budget of 1746 billion VND.

Dong Hoi City

In relation to the urban environment and CCA in Dong Hoi, there are quite a few ODA projects (**Table 2**). In the list of projects in the AP of CCA of Quang Binh, the city /districts were not mentioned as the main implementers of the plan since all are related to the provincial departments.

Table 2: ODA project related to environment and climate change for Dong Hoi City

Name of the projects	Starting and ending	Total cost (mill USD)
I. Before 2011		3.548
1. Urban Development for Dong Hoi (SDC funded)	2003-2007	3.548
II. On going		
1. Urban Environment for Dong Hoi City (WB funded)	2007-2014	69.125
2. Regional ADB TA: Harnessing Climate change Mitigation to Benefit Women"	2013-	
3. ADB- PPTA project for urban environment and CCA-7181VIE	2012-2013	1.2

Source: DPI at the meeting 29 March 2012.

There are only two staff working on the environment issues of the city and the percentage of budget allocated to environmental activities is still very small, just about 1,200 USD/year. The climate change issues are not major concerns yet for the city and the local people, except only

¹³ At the meeting with Donre provincial, March 28, 2013

¹⁴ Decision N 1328/KH-UBND, dated October 29,2012

for floods and rain. There is no institution yet that takes care of climate change adaptation activities.

3 KEY STAKEHOLDERS INVOLVED IN THE MAIN ISSUES FOR URBAN ENVIRONMENT AND CLIMATE CHANGE

3.1 CENTRAL GOVERNMENT AGENCIES

In Vietnam, the sectoral responsibilities for urban services and environment, urban management and climate change involve the national, provincial and city/district government agencies. The national government agencies are mainly responsible for policymaking, development strategies, setting standards and supervising the enforcement of these issues. The provincial and city/district governments are generally responsible for implementing the policies, management, operation and maintenance (O&M) and construction supervision of urban infrastructure. In recent years they have also assumed the main responsibility for the development of urban infrastructure under the government's decentralization initiatives.

Up to date information related to the projects are available with the three technical ministries involved in urban development, urban environment management and climate change adaptation. These are the Ministry of Construction, Ministry of Natural Resources and Environment, and Ministry of Agriculture and Rural Development.

At the national level the *Ministry of Construction (MOC)* has primary responsibility for technical oversight of the urban sector. As the line ministry for urban development, it manages the construction, building materials, housing, public works, architecture, development, and planning of urban infrastructures. The Viet Nam Urban Development Agency, within the MOC, prepares urban development strategies, national urban development master plans, and urban development projects of national significance. The MOC's Department for Urban Infrastructure is in charge of all issues related to the environment such as drainage and wastewater, water supply, solid waste, etc.

As for environment and climate change, the Ministry of Natural Resources and Environment (MONRE) has primary responsibilities for land administration, water, mineral resources, geology; environment; hydrology, measurement, mapping; comprehensive management of sea and islands, and climate change issues. The Department on Environment Protection deals with strategic environmental assessments. For climate change issues, MONRE is the standing vice chairman of the National Steering Committee (NSC) for the National Target Program on Climate Change Adaptation which is chaired by the Prime Minister. The structure of the NSC is shown in **Figure 2**.

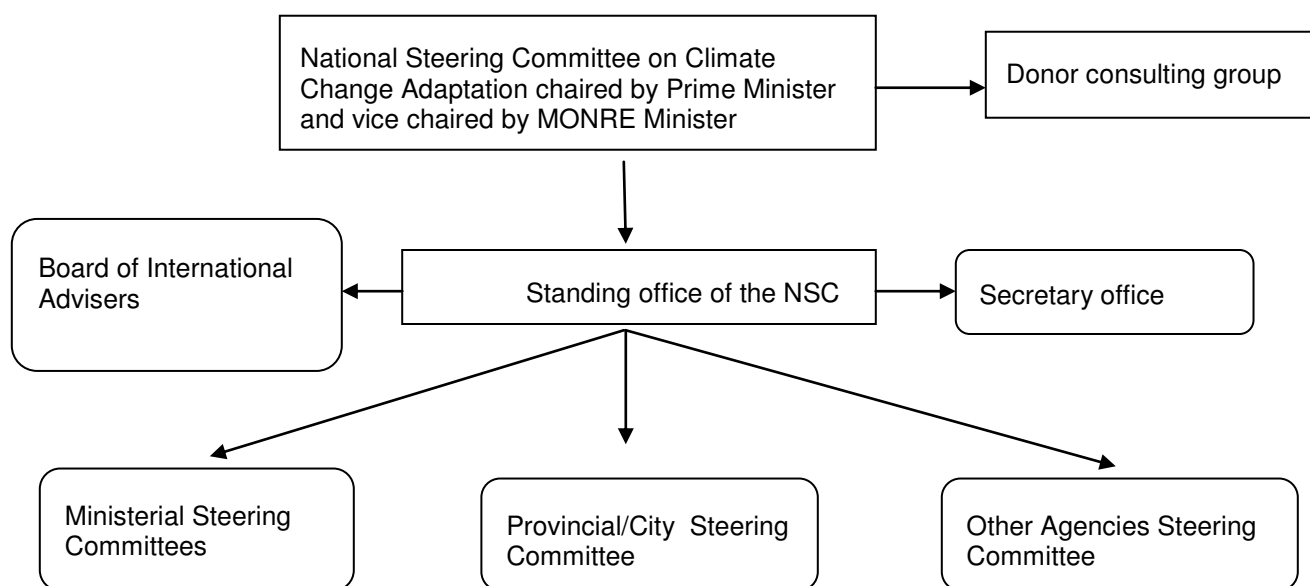
The Ministry of Transport (MOT) has responsibilities for the strategic development plans and the legal framework to manage roads, expressways, railways and all other transport assets, including waterway, sea and airports. In addition to the road transport, the General Road Administration under the MOT is responsible for the national road system.

The other central government ministries involved directly in urban sector development and management, and in ODA projects are:

Ministry of Planning and Investment (MPI)—allocates the state budget to major investment projects, approves major investment projects, and prepares the national five-year social-economic development plan. In addition, as to ODA management, MPI is the agency that coordinates ODA projects, supervises and reports on ODA project implementation.

Ministry of Finance (MOF)—proposes to the Government the overall annual budget and the budget allocation among the sectors and the local governments, sets the annual sector budget, and regulates public finances. Related to ODA projects, the MOF is responsible for the loan and payment policies. It plays the important role of being responsible in providing guidance on the loans for the project requirements of the local authorities

Figure 2: Organizational arrangement for implementing the NTP on CC of Vietnam.



3.2 Local governance administration

3.2.1 Provincial governance

The two targeted cities (Hoi An and Dong Hoi) are secondary and provincial cities and are under two provincial authorities.

At the provincial level, the Provincial People Committee (PPC) exercises the executive authority over all provincial functions, including the state management function for urban infrastructure. As mentioned above, the line ministries have their corresponding departments in the structure of the provincial government. PPC uses the board, offices and committees to facilitate cross-sectoral coordination.

The PPC is the executive body of the People's Council and state administrative agencies in a province, and is responsible for the implementation of the Constitution, law, government policies and resolutions promulgated by the Provincial People's Council (PPCs). The People's Committees perform state management at the local level and contribute to ensuring the united direction and management system in the state administrative apparatus from the central to grassroots levels.

The organizational structure for Quang Binh and Quang Nam province is shown in **Figure 3**.

Generally, there are three groups of agencies under PPC management and supervision. They are specialized technical departments, Districts/cities People Committees, and public services delivery agencies or/and public utilities companies.

The technical departments under PPC are responsible for advising and helping the PPC in undertaking state management functions that include the development of provincial and sectoral strategic development plans and supervising their implementation. For each province, the number, technical areas/departments and functions of each technical department are more or less the same and have similar mandates and functions. The same goes for the public agencies and companies. The public services delivery or public companies are like the implementing agencies of the related provincial policies. **Appendix A** shows the main functions of main provincial technical departments.

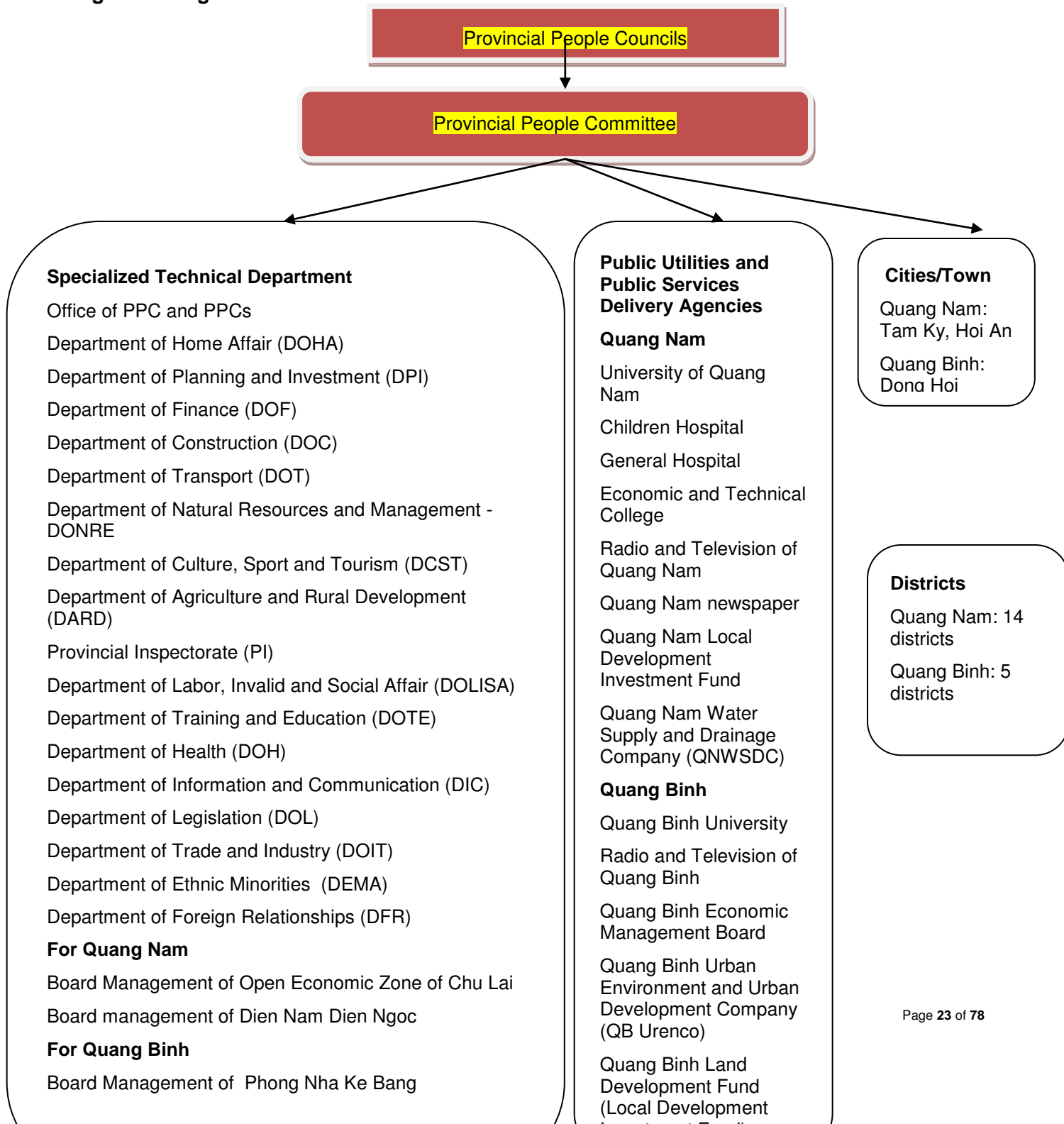
The provincial departments related to the project components are the Department of Natural Resources and Environment, Department of Transport, Department of Construction, Department of Agriculture and Rural Development, Department of Planning and Investment and Department of Finance. Since most of the departments having similar functions, the visits to these departments in the two provinces are done on a selective and complementary approach.

Currently in each province, there are a number of public utilities/companies that provide urban services to the public. In the case of the project, the two public utilities are working as Implementing Agencies/Investment Owners are Quang Nam Water Supply and Drainage Company (QNWSDC) in Quang Nam province and Quang Binh Urban Development and Environment Company (also referred to as Quang Binh Urenco in this report) in Quang Binh province.

As mentioned, the provincial departments play the role of implementing the central policies in the provincial areas, as well as the provincial development policies. These departments provide advice to the provincial authorities, PPC, who are the executing agencies of the project. The main issue of these departments that can affect the cities' development, as well as the project implementation, is the payment capacity.

It should be noted that being poor provinces since the last 20 years and perhaps for the years to come, those two provinces receive budget subsidies from the central government and all their donor funded programs up to now are just grants. This means, there is an urgent need to build up the capacity of PPC as well as the related provincial departments and implementing agencies in dealing with and being accountable for their project loan repayments.

Figure 3 : Organizational Structure of PPC



3.2.2 Key provincial agencies involved and main bottlenecks - Quang Nam province

The visits were conducted in the 5 provincial departments which all have close relevance with urban development, the management of urban environment and climate change adaptation and future related project components.

Department of Construction (DOC)

DOC is a technical department under PPC of Quang Nam. It has the mandates to advise PPC in the areas of construction, construction materials, houses and working offices; architecture, special master planning; technical urban infrastructure, industrial, processing and highly technological zones; urban infrastructure; water supply, waste water processing, lighting, green parks, cemeteries, urban solid wastes, urban development, and property market business. The department is under the direct authority of Quang Nam PPC, and at the same time under the authority and technical guidance of MOC. On behalf of the PPC, the DOC is also the agency that provides supervision to some companies and public service agencies working in the construction sector, including Quang Nam WSDC¹⁵.

Relationship of DOC with the City Government and Companies

The DOC gives approval on the master spacial plan of Hoi An City and does the appraisal of city projects which cost more 15 billion VND. As to the water supply and drainage system, the DOC provides appraisal and license for the construction of basic technical designs for water supply and drainage projects.

DOC has approved the revised master spacial plan for the development of Hoi An City for 2011-2020, with the vision for 2030. The plan has been recently approved by the PPC. For the Quang Nam WSDC, DOC has the function for the overall management of the company in various aspects. The QNWSDC has to report to DOC on the human resources issues, its annual performance report and the situation of water supply in the areas that the company is providing services. The DOC also reviews the master water supply network of the company to ensure its consistence with the overall master development plan of the province. In addition, the DOC together with DOF gives advise to the PPC in water tariff increases in case inflation reaches 7% for urban areas, and 10% for rural areas.

Main constraints

Currently, there is no MOC guideline yet to integrate CCA in construction projects, as well as in the urban master plan. The plan to assess the impact of climate change in Quang Nam province was just approved recently. This makes it difficult for DOC to provide advise to the PPCs or City government in integrating CCA in their related projects. Under the new government decree N15/2013 on managing the quality of construction in investment project,¹⁶ which has been in

¹⁵ http://www.sxd.quangnam.gov.vn/images/stories/Nhiem_vu_SXD.pdf

¹⁶ Government decree 15/2013 on the management of quality of construction projects, dated on February 6.2013.

effect since April 15, 2013, the DOC will have to first approve the general technical design before the investors could make their detailed technical design. In which case, given only 36 staff working for the different divisions (including construction inspectors), the volume of work will increase, particularly for the infrastructure division. The DOC could only manage currently the projects based on the documents available, since they do not have financial means to conduct field works to check what is going on with the project in reality.

Department of Natural resources and Environment (DONRE)

DONRE is responsible for advising the PPC on land and water resources, mineral resources, geological issues, environment, meteorology, surveying and mapping, land use planning, and climate change issues. In addition, DONRE is in charge also of climate change issues for the province in general.

Existing situation and relation of DONRE to WSDC and Hoi An City.

The DONRE's Environment Protection Division (EPD) was established in 2008 based on the PPC decision 34/2008. Until now it has only 10 staff in which the general sub division has only 4 staff that is in charge of the environment. These 4 staffs have to work on environment appraisals for all projects of the province, and also have the responsibility to deal with biodiversity issues in the province. According to the government decree 29/ND-CP/2011¹⁷, depending on the project, the provincial DONRE is the agency which does environment assessments (EA) for the water supply projects. In addition, the Division of Water Resources of DONRE is in charge of giving the permission for the QN WSDC in exploring water resources.

The decree No 29/2010 had given back the environment assessment duties of the district and city to the provincial DONRE which is still unclear. This means more work on environment assessments for the EPD. For example, hotels having more 50 rooms need to have environment assessment appraisals from DONRE. Another issue is that the decree is not clear which agency should do the environment appraisal for the tourist type of "home stay" projects, whether it is the MONRE or the provincial DONRE.

The implementation of Decree 29/2010 would be difficult with the lack of capability and manpower resources. The EPD would have an overload of work given their allocated manpower resources. The division has to work on a number of issues which are "hot" topics in Quang Nam, beside the environment issues. The controversial issues are the problems with hydro power stations and natural mineral resources. Furthermore, the equipment and facilities required for environmental monitoring and control of the division are very limited. This, therefore, limits the impact of environment protection work, as well as pollution control in the province. Currently, there is a provincial strategy on environment protection up to 2015 and a vision for 2020. In this strategy, there are still 24 projects that are waiting for the allocation of funds.

¹⁷ Government decree on regulation/rule on Strategic Environment Assessment, environment assessment and environment protection commitment, N 29/2011, dated on April 18, 2011

The Department of Transport (DOT) is responsible for all related aspects of transportation, including roads, waterways, other means of transportation and safety. The DOT's unit (PMU) is in charge of O&M for roads that are wider than 15 meters.

Relationship to Hoi An City and Project.

The DOT's Transport Infrastructure Division will do: i) project appraisal of basic design and drawings of roads for construction; ii) provide construction permits for the projects and iii) handle the O&M for provincial roads after these are constructed. Currently, the Road to Cua Dai Bridge and Road N 678 are classified as provincial roads. The PMU of DOT will likely take care of O&M work once the investment is made. However, the PMU will have a bidding organized for the private sector to handle the roads' operation and maintenance.

Main Constraints

The major constraint at present is the allocation of funds for O&M work within the province. As reported, the norm for the maintenance for every 1 km of road is 26 million VND annually, however in practice, the fund being allocated is only about 13 million VND/ km, just half of what is needed.

The Department of Planning and Investment (DPI) is responsible for planning and investment, including coordinating physical plans, socio-economic development plans, implementation and development of policies that relate to economic and social management in the province. The department is also in charge of domestic and foreign investments in the province and their business registration. In relation to ODA projects, the DPI is responsible: i) for mobilizing, coordinating and providing oversight and supervision on all ODA project implementation, ii) for allocating counterpart funds for ODA projects in the province; iii) appraise the list of projects proposed and the results of the bidding. In this context, the DPI does play an important role for the Project and for QN WSDC.

Existing Situation and Constraints

Being a poor province, Quang Nam province and in particularly Quang Nam WSDC currently receive considerable support from the donor communities. Just recently, the PPTA for the Secondary City Development Project funded by ADB for Quang Nam province was completed. The Quang Nam WSDC has implemented different projects from WB, ADB, Norway, Italy and Finland. As reported by the DPI, the biggest challenge for the province is the limited availability of counterpart funds, and which are usually not provided on time. Lack of financial resources for climate change activities is also another issue. The integration of climate change issues into the provincial Socio Economic Development Plan (SEDP) is done through the allocation of financial resources for flood protection activities, such as building local houses suitable for flood conditions.

3.2.3 Key provincial agencies involved and their main bottlenecks - Quang Binh province

For Quang Binh province, the 4 provincial departments that were visited all have closely related functions on urban development, management and urban environment management, and with the future project components in the province.

Department of Agriculture and Rural Development (DARD)

The department is in charge of flooding and irrigation among other issues of the province. In the department, there are two related divisions to the project components. These are the division of dike and irrigation, and flood protection division. Currently all dikes ranked as category 5 level are decentralized to the cities/ districts to manage. DARD's division on dike and irrigation manages dikes ranked at category 3 and 4 levels.

The irrigation and dike division is currently implementing the component for rehabilitation after the natural disasters from the WB funded project on Natural Disaster Risks (2007-2013). In addition, there is a permanent office on flood protection, and SOS which advises the PPC on the legal framework for flood protection.

Relationships and issues related with the project components in Dong Hoi City

Currently, a number of operators manage the dike system along Nhat Le River, which is dependent on who the investment owners are. If the project is constructed using the provincial budget then the DARD is the one to manage the dike. If the dike project is to be funded by the City, then the city will manage the dike after the construction phase.

Department of Natural Resources and Environment (DONRE)

DONRE is responsible in advising the PPC on land and water resources, mineral resources, geological issues, environment, meteorology, surveying and mapping, land use planning, and climate change issue. In addition, DONRE is in charge of climate change issues for the province in general. Its difference with that of Quang Nam province is that the Division of Island and Sea is in charge of climate change issues for the province.

Existing situation and relation of DONRE to URENCO and Dong Hoi City

DONRE had advised the PPC on the Action Plan of Climate Change 2011-2015 and the vision to 2020. The PPC of Quang Binh approved the plan in Decision 3073. In addition, the provincial decision N 1328 has detailed the main tasks under decision 3073 during the period of 2011-2013. However, there are currently no official arrangements for the province to work on any climate change issues. The proposal also to set up the Steering Committee on climate change has not been approved yet by the PPC. All these are really still major issues.

There are a number of major constraints in the implementation of the plan that have not had any guidance yet from the central ministries, MPI nor MARD, on how to integrate climate change issues into the sectoral planning. The proposed SEDP 2011-2015 and the vision to 2020 for the province were not approved by central government since it did not undergo a strategic environment assessment. The financial resources allocated for CC, as well as for the other

environmental activities in Dong Hoi is limited¹⁸. These conditions make the implementation of provincial policies for the environment in Dong Hoi City very difficult.

As to the Quang Binh Urenco Company, the DONRE is in charge of monitoring and supervising, as well as reporting all the work of the company, including the approval of Urenco's environment assessment report. The Department is also supervising the company in the implementation of solid waste processing.

Department of Finance (DOF)

Based on the visits, below are the issues of the DOF for the two provinces:

It used to be that when the loan is granted from the central government to the province, the DPI plays the major role for ODA granted projects in supervising as well as allocating the counterpart funds for the project implementation. The DOF just played a minor role in this context.

The DOF identifies the counterpart fund for the investment owner once the project starts implementation, and gives advice to the PPC to ensure the full and timely repayment of the loan and on allocating sufficient resources for O&M once the investment is done. As mentioned by the department, the financial resources allocated to environment as well as climate change activities are quite limited.

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Once the province would borrow the loan (which is passed on from the central government to the province), the DOF's role will be to provide advice to the PPC on the amount of counterpart fund to be allocated as well as the plan for the loan repayment. The DOF also advises the PPC on the allocation resources for O&M for the invested components. So for the OCR project borrowed by province, the DOF does play a crucial role.

Since this is the first ever OCR project, and the ability of the province to pay the loan is the deciding factor for the project's sustainability, and the clarification of DOF's role on the matter shall be an urgent issue.

For the two provinces, the Department of Finance should have already had the "superior important seat" during the PPTA process. However, this was not a case for both provinces. The important role of DOF in advising the PPCs during and after the project implementation should be clarified, particularly since it shall be the watch dog for the cost effectiveness of the money used for the project and the money allocated for O&M. In addition, the plan of the loan payment suggested by the Quang Binh PPC clearly shows that capacity building for public financial management in general, and financial management related to OCR loan payment are needed urgently for both the provinces authorities and its related agencies including DOF, DPI and the implementing agencies.

¹⁸ Annually only around 2000 USD is allocated to environment work for City Donre, open ended discussion with provincial Donre by March 28, 2013.

3.3 City administration governance and main issues related to urban environment and climate change adaptation

3.3.1 City People Committee – overall picture

Dong Hoi and Hoi An cities are both classified as secondary cities (ranked as 2nd class city). These cities have similarities in their governance administration structures as discussed below.

The City People Committees (CPCs) are responsible for the state administration of provincial cities. The CPC is comprised of 9 to 13 members¹⁹ who are elected by the City People's Council (CPCs). The CPC is responsible for implementing decisions made by the People's Council at the city level; implementing government decrees, decisions, circulars, etc. They provide instructions and guidelines to their lower level agencies for implementing state management functions relating to economic, cultural and social development. They also coordinate with mass organizations, and consult with the city communities. The CPC has the authority to approve projects and technical designs within prescribed limits.

Specialized technical divisions, public services delivery units, centers or companies, which enable it to carry out its state management functions, support the CPC thus providing continuity in administration and management from the central to community level. These agencies operate under the direction and management of the CPC with regard to staffing, finance, organization and performance.

The organizational structure for Dong Hoi City is shown as **Figure 4**, with differences for Hoi An noted, where available.

Article 100 of the Law on Organization of People's Councils and People's Committee stipulates in relation to construction and transportation, the CPC is responsible for:

- Organizational set up, implementation of approved town plans and the management of the implementation of the approved construction plan.
- Management, operation, maintenance, and use of transport and infrastructure facilities.
- Construction management, construction permits issuance and enforcement of the implementation of the law on construction. Implementation of housing policies and land management.
- Managing the use, production and trading of construction materials.

3.3.2 Technical Divisions under CPC

Decree No. 14/2008/NĐ-CP, dated 04 February 2008, and prescribes the organizational structure of technical divisions under the CPC. These divisions' advice and support the CPC in undertaking state management functions for the city. They include:

¹⁹ For cities under provincial administration. For city is under central administration, city people's committee (CPC) have 11-17 members.

- *Division of Urban Management (or the Urban Management Division)*—design and architecture, construction planning, urban development, residential housing and office building, construction building materials, transportation and urban infrastructure—water supply, wastewater urban environment sanitation, public parks, street lighting, solid waste, management and packing and trains port terminals.
- *Division of Economics*- all issues related agriculture, aquaculture, forest, irrigation, flooding protection, rural development, household economy, scientific, technology issues,
- *Division of Home Affairs*—organizational structures, staffing, administrative reforms, local governance, religious activities, and others.
- *Judiciary Division*—development of legal documents, dissemination of laws and associated education, execution of civil judgments, legal aid, and mediation at the local level.
- *Division of Finance and Planning*—areas of finance, assets, socio economic development plans and investment, business registration, and management over private and collective businesses.
- *Division of Natural Resources and Environment*—land, water, minerals, environment, meteorology, mapping and the sea.
- *Division of Education and Training*—education and training issues, including objectives, programs and content for education and training, standards for teachers, education managers, school premises, school facilities, and children's toys.
- *Division of Trade and industry*- trade, industry, technology, informatics, telecommunications.
- *Division of Culture and Sport*- culture, sport and tourism issues related.
- Division of Health is dealing with all health issues related

3.3.3 Key agencies involved in the Urban Development, Management and Urban Environment Management

Related to project components suggested in the MOU²⁰, to urban development and environment issues, there are at least 3 city technical divisions directly related to all suggested project components, and urban environment and water supply companies. They are Urban Management Division, Division of Natural Resources and Environment and Economics Division; Quang Binh Urenco, Quang Nam/ Hoi An Water Supply and Drainage Company, and Public Work Company of Hoi An City.

The organizational structure and mandates of those divisions are similar for the two cities. One of the differences is that in Hoi An, the number of staffs working on those issues are much more than in Dong Hoi city.

Urban Management Division (UMD)

²⁰ The MOU – TA special review mission by 23-27 September 2013

The Urban Management Division (UMD) plays a key role in managing urban services and infrastructure in the two cities. Its main responsibilities are²¹:

- Assisting the CPC prepare and administer the Urban Master Plan, including engaging agencies or consultants for plan preparation; preparing detailed plans for projects; and advising on locations of facilities, including land fill sites, parking areas and bus terminals.
- Managing construction investment, including appraising investment projects financed by CPC and project costing below 10 billion VND²²; and supervising construction work, including advising CPC on bid evaluation, administering payments and monitoring work quality, and issuing construction certificates.
- Managing urban housing and land development, including preparing an annual plan for the acquisition of agricultural land for urban development; preparing documents for land acquisition; allocating land to investors in accordance with CPC decisions; supporting those engaged in buying or selling residential land; preparing documents for issuing land use rights; and resolving problems relating to land use, housing and construction.
- Managing transport and public facilities, including coordinating the provision, operation and maintenance of all urban services for the city—transport, water supply, drainage, sanitation, solid waste, telecommunications, electricity, street lighting, trees and parks, cemeteries, etc; supporting the CPC with advice on urban management and environmental issues; and in collaboration with DONRE , preparing the annual environmental examination for the city.
- Preparing documents and providing support to CPC for priority projects, including formulating recommendations on these projects to CPC, assisting with project preparation, especially for ODA projects, and preparing bid documents for construction.
- Managing city level companies, including the urban environmental management companies (URENCO), in terms of technical aspects, and housing companies for planning, technical aspects and land clearance.
- Coordinating urban management and the provision of urban services in the city with relevant provincial level agencies.

Natural Resources and Environment Division (city DONRE)

The DONRE plays a key role in managing and ensuring urban environment in the two cities. Its main responsibilities are²³:

- Assisting the CPC issued guidelines on implementing master plan, plan, and policies related to natural resources and environment management and supervising their implementation.
- Development of master plan on land use and its adjustment, city land use plan, transfer of land use right and providing land use certifications
- Determining land pricing and land compensation and land resettlement
- Provide registration on environment protection commitments and supervising their implementation; development of report on environment situation of the city;

²¹ Taken from Hoi An CPC decision N 04/2010/QD-UNDN on Function, duties and authorities of Urban Management Division of Hoi An City, date February 5, 2010

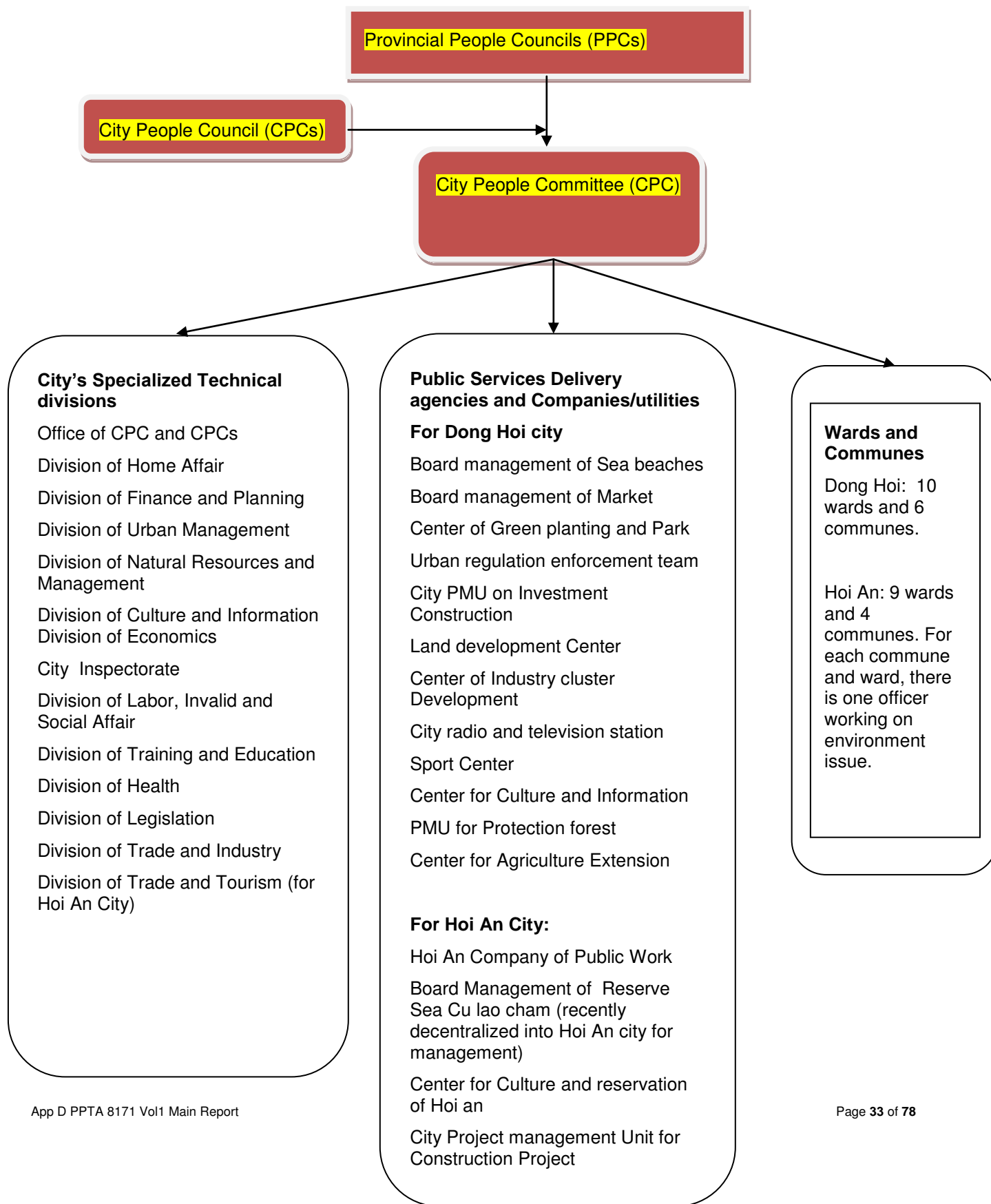
²² For Quang nam province and Hoi An case. At the meeting with DPI Quang nam, March 13, 2013

²³ Taken from Dong Hoi CPC decision N 08/2010/QD-UBND on Function, duties and authorities of Donre of Dong Hoi City, dated March 26, 2010

- Surveying and collecting databases on wells to be fulfilled
- Provide propaganda, communication and educational activities on environment laws and regulations on natural resources
- Providing technical professional advices to commune/wards officers working on environment areas

The DONRE is also in charge of climate change issues of the city which is however not officially stated for both cities.

Figure 4: City administration and governance structure



Division of Economics (DOE)

The DOE plays a key role in managing economic issues of the city, which include also irrigation and flooding activities. Its main responsibilities are²⁴:

- Providing advice for CPC to perform state management functions in:
 - Agriculture, aquaculture, irrigation, rural development, household business development, cooperative development
 - Science and technology,
 - Industry and trading and handicrafts
 - Flooding activities

Related to project component, there are two issues that the division is involved:

- The division is a standing vice chairman of the city flooding protection board where it is chaired by vice Chairman of CPC for each city.
- The division is organizing protection work for dikes, irrigation, rural drainages systems, flooding protection subjects.

In future, there will be likely that once dike project will be constructed, O&M of those of dikes will be under the supervision of the DOE, at least in Hoi An City. The actual management and operation of the dike is different depends on the local authorities.

It should be mentioned that city's division of Planning and Finance (DPF) does play important roles as it advises the CPC in allocating financial resources to the work of related mentioned divisions.

3.3.4 Main Bottlenecks urban management and environment improvement

Hoi An City

In comparison with many cities in Vietnam, Hoi An city is strongly committed to a development path which is environmentally friendly and eco green. In 2009, Hoi An CPC approved an ambitious program entitled "Development of Hoi An City to become an Eco City". The program has been grouped into three clusters with different projects for each cluster. There are 37 projects among which 18 projects are on-going, to achieve this goal. For each commune, there is one staff working on environment issues. At city level, it is planned that 4 officers will be allocated to work on environmental issues. In addition, quite a numbers of local initiatives to make the city green are on-going over the past ten years.

As to institutional arrangements, quite a number of bottlenecks that affect overall effectiveness have been documented in the city's Program of Public Administrative reform²⁵. The most prominent as mentioned in the document are:

²⁴ Taken from meeting with Mr. Truong Huu Khiem, Head of the division of Dong Hoi City, by 27 March 2013.

²⁵ Continuing Public Administrative reform for government machines in Hoi An city, 2012-2016 Program, dated by February 2013 and signed by Chairman of CPC Hoi An

- No consistency and regular working coordination between divisions and with local communities.
- No clear accountability of government officials;
- There is overlapping functions/mandates between divisions;
- A lack of human resources both quality and quantity
- Quality of capacity building /training activities is still low.
- The performance assessment is not timely nor effective;
- Working culture is not professional;
- The block grant approach implementation is experiencing delays.
- The decentralization to lower levels is not sufficient.

The mentioned issues are also found in the area of urban environment and climate change adaptation activities.

Appendix C shows the overall picture of the roles/responsibilities of the technical agencies of Hoi An. The responsibilities range from planning, budgeting approval, providing permission, implementation, supervision, M&E and O&M activities related to UE and CCA and flood protection .

The city has specific and concrete measures related to flood disaster issues. The city board/committee of flood protection, which has representatives in all related divisions and commune, is functioning quite well, particularly during flooding events.

As to climate change adaptation, as mentioned, Hoi An has several initiatives to make the city greener with community participation. However, as to the organizational set up, some issues need serious consideration. There is not a body yet to deal with the climate change issues of the city. Nor is there an official institutional arrangement for dedicated staff to work on climate change issues. The knowledge as well as awareness of climate change issues is very limited at the management as well at operational levels. The TA team was informed that there has not yet been any course program held related to CC. The master development plan of the city was approved but does not take into account the impacts of climate change. This is confirmed by a study of UN Habitat on Assessment of Hoi An Vulnerability and its Capacity for CC adaptation. This is quite understandable, as a project on the assessment of effects of climate change for the master socio economic development plan of Quang Nam was only approved in December 2012²⁶.

Moreover, there is still a grey area between the work of the Economic Division and DONRE on climate change project management. As mentioned, a project on planting coconut/ mangrove forest with community participation is under the city DONRE management, however as designed, this project is considered technically within the agriculture sector which should be covered/or coordinated with the Economic Division. DONRE seems to tend to become overloaded with work. Currently DONRE is the coordinator of Hoi An's Eco-Green City Program and head of the Cu Lao Cham- Hoi An Biosphere Reserve Management Board. It is expected that DONRE will also become a focal point on climate change activities for the city.

Limited budget availability affects the sustainability of city development. The financial resources allocated to environment protection are limited. The wastewater network developed by French project has completed its construction; however, it could not be connected to the individual

²⁶ Quang Nam PPC decision 4369/QD-UBND, dated December 16, 2012.

households due to shortage of the city budget²⁷. The city is responsible for maintaining the city road network system, but the budget allocated to O&M annually is only about 25% of the demand. The situation is the same with the provincial road network. As reported, annually, the cost norm for the maintenance of 1 km of road is 26 million VND, but in reality, only 13 million VND is allocated. There are four climate change projects²⁸ scheduled for Hoi An from 2011-2015, however it is reported that none of them has been implemented yet due to lack of budget.

Dong Hoi City

Since 2010, the WB has supported the city in developing an initial local resilience action plan for Dong Hoi (LRAP) with specific activities to be carried out (and indicative actions for 2015-2020) which need to be revised/updated. However, it is reported that the plan has not been carried out and is out of date with the current situation. Currently in addition to this TA, there are two on-going related projects funded by World Bank and ADB²⁹ (**Table 2**).

Human resources as well as facilities and resources for environment issues are very limited. In Dongre there is not any staff working on CC officially yet and two staff working on environment issues, no staff specifically at commune/wards level is working on environment.

There is a city board for flood protection which has representatives of all related divisions and of communes. The board is functioning quite well, particularly during the flooding season. However, shortages of facilities as well as capacity to deal with actual situations are still main issues. As to the climate change adaptation, at city level, there is not yet any kind of agency set up (such as task force) to deal with this critical issue. Moreover, there is not an official institutional arrangement for dedicated staff to work on climate change issues. Like in Hoi An, the CC is not yet “institutionalized” into the city operational units including city Dongre.

As to urban management, currently there are not yet any clear functions and roles between the various units of the city and between province and city. There are quite a number of examples. The Urban Management division does have a mandated role to play in reviewing and approving urban development projects and oversight on the quality control of all works; however, since 2009, the division was more or less by-passed by the city PMU and the city team on urban rules enforcement which used to be under the authority of the Urban Division. This team is under city authority now. In Nhat Le River's dike system, there can be different managers (city's or provinces) depending on who is the owner of the investment in the construction of the dike system. If the city is the investor/ owner, then the division will be the one to manage the dike once it is built.

The **Appendix C** shows the overall picture of roles/responsibilities of the technical agencies of Dong Hoi city. The responsibilities range from planning, budgeting approval, providing permission, to implementation, supervision, M&E and O&M activities related to UE and CCA.

²⁷ Recently the city leader informed that there will be support from French Embassy for connecting this network- open ended discussion with city leader in Hoi An by September 20, 2013.

²⁸ List of Projects Planned in Hoi An, of the List of project in NTP of CCA in Quang Nam Province 2011-2015, approved by QN PPC Decision 4043.

²⁹ Urban Environment for Dong Hoi City (WB funded) and ADB TA Regional Project titled “Harnessing Climate Change Mitigation to Benefit Women” for Dong Hoi City.

Bao Ninh Development area

Up to date information suggests that most of the project investment will be focused in Bao Ninh development area. As informed by the Quang Binh PPC, the main development objective of Bao Ninh is to become an economic and tourism development center which shall be seen as a main dynamic economic and heart centre for development of Dong Hoi city and Quang Binh province. In addition, given the project investment focus, Bao Ninh development area should become a revenue generating source for paying back the OCR loan, together with other project components like wastewater management in the old city area.

To achieve this objective, a management mechanism “innovative model” which can ensure the effective use and have overall responsibility to manage the invested infrastructure for the area among others, needs to be considered.

As planned, the infrastructure invested by the project will be handling to the responsible agencies to manage according to their mandates. This mean, the complex of infrastructure be invested by the project will be potentially manage by different agencies at province and city level. For example, road having wide bigger 15 m will be handle to the DOT, and having wide less 15 m be managed by city; drainage and wastewater network will be managed by Quang Binh Urenco; water supply network and system will be managed by Quang Binh water supply company...As mentioned in the analysis above, the financial shortages for the O&M for those systems and mentioned institutional arrangement can endanger the sustainability of the invested infrastructure system as well the possibility to pay back the OCR loan.

4 PUBLIC AND SEMI-PUBLIC UTILITIES: URBAN ENVIRONMENT MANAGEMENT COMPANIES AND WATER SUPPLY AND DRAINAGE COMPANY

In the two provinces, the PPCs have established provincial level or city level urban environmental management companies to manage operate and maintain urban services, except for water supply and telecommunications. These agencies are self-accounting state public utility enterprises, operating under the Enterprise Law, 2005. They provide public services in compliance with policies, plans, prices, pricing structures or fees stipulated by the government, and operate generally on a non-profit basis for Quang Binh Urenco and Hoi An PWC on the urban services.

The urban environmental and urban development company in Quang Binh province (Quang Binh Urenco) is working in Dong Hoi area, while in Hoi An, Hoi An company for Public Work (CPW) is working in Hoi An. Those two companies are almost 100% state owned companies³⁰ and do have plans of selling out to the public soon³¹.

³⁰ It is informed that by July 2013, the Hoi An CPW was equitized as one limited member state company where the state get 51% of share holder. As discussed with the company leader, there are not much change as to management mode of the company but only the new name

³¹ Quang Binh Urenco will be sell out to the public by 2015.

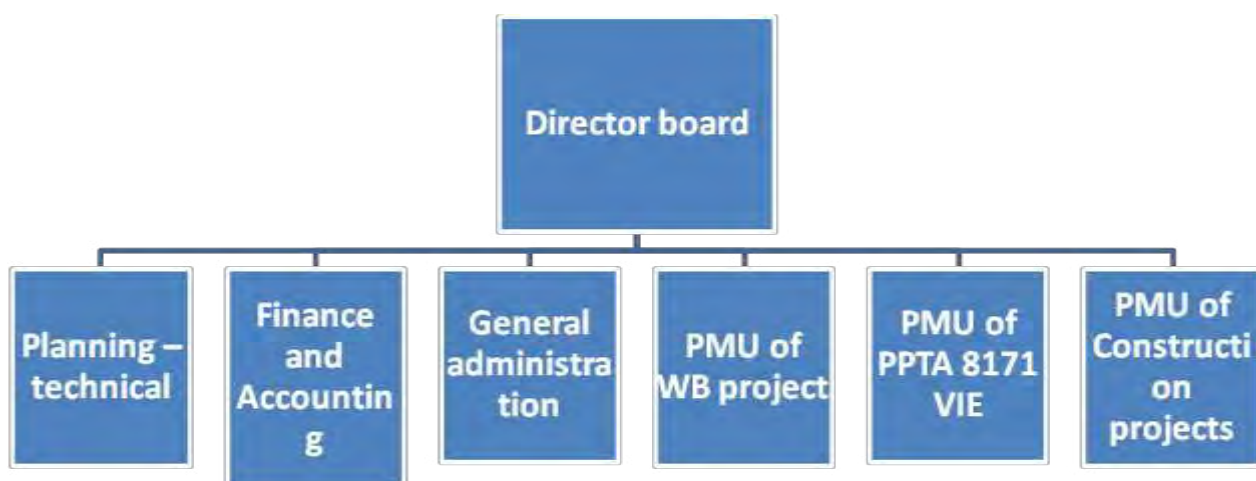
Those two companies have similar functions. The CPW Hoi An is responsible for solid waste management, parks and gardens, O&M of drainages system and footpaths; design and construction, while Quang Binh Urenco has responsibilities in solid waste management, public lighting, drainages and construction of urban development projects.

The PPC decision establishing such a company sets out its registered capital and working capital, its mode of operation, its legal status, stamp and bank accounts, and its functions. These usually include public sanitation—collection, transport and disposal of solid waste, drainage and wastewater; maintenance of public infrastructure; construction of small and medium urban environmental and sanitation works; and the installation and maintenance of public lighting, maintenance of parks and city greening. The PPC's decision establishing these agencies assigns administrative responsibility to the relevant provincial agencies or CPC for supervision. The PPC/CPC assigns an annual plan for the agency that covers the quantity and quality of public services to be supplied, the time and place of service delivery, the unit price and subsidy requirements for public services, and budgets.

4.1 QUANG BINH URENCO COMPANY

Originally a company named Quang Binh Company of Urban Work was established in 1989. Since May 2009, the company was renamed as Quang Binh One Member Limited Company on environment services and urban development. The company is a state owned enterprise. The organizational structure of the company is presented in **Figure 5** which is only for administrative divisions. Under this administration there are 6 working units which are units for i) collection and processing solid wastes; ii) transportation team; iii) public lighting team; iv) urban drainages team; v) land fill team; and vi) bio processing bio team.

Figure 5: Organizational Structure of Quang Binh Urenco (administrative sections)



Relationships of the company with provincial department and city divisions

Although this is a provincial company, most of its services are in Dong Hoi city. The DOC not only approves and appraises any projects on drainages system development of the city, but also supervises the drainages system that the company is operating and maintaining.

The DPI is allocating counterpart fund to ODA projects that the company is implementing and supervising for ODA project implementation; in addition the DPI also approves the bidding plan of the project. The Company annually signs “a contract” with CPC Dong Hoi on providing environment services for the city.

Quang Binh Water Supply Company is transferring 8% of water charge fee to the company for its expenditure on the O&M of drainage work that the company is operating. Annually the amount of fund for O&M work is not sufficient. For example in 2012, 2 billion VND was allocated for this work. By 2013, the company proposed a budget of 4,7 billion VND but the company got only about 3 billion VND.

The CPC of Dong Hoi annually signs a contract for the services with the Urenco. The UMD, DFP and city DONRE, on behalf of CPC, check the volume and quality of urban services that the company is implementing for Dong Hoi City. The company is working with city UMD on the issues of O&M for drainages system.

Experiences in Donor funded Project Management

Currently the company is under the support from WB project on environment improvement for Dong Hoi City, since 2007 to 2014. There is a specific PMU established to manage the project where there are 35 staffs working, including the leaders and technical officers of the Urenco. It is planned that experienced staffs of this PMU will be transferred to the “new” PMU for the project.

4.2 QUANG NAM WATER SUPPLY AND DRAINAGE COMPANY

The company was created as state owned company in water supply and drainage and other services including urban development area and tourism business. The summary sheet of the company is in **Appendix B**.

Table 3: Water supply performance and coverage of the QNWDC for 2006-2011

Water supply performance of the QNWDC	Unit	2006	2007	2008	2009	2010	2011
Population in the services areas covered by the company	Population	195,213	203,236	212,353	219,025	224,535	226,938
Annual growth rate of population	%	-	4.10	4.50	3.14	2.51	1.07
Numbers of people got the services	Population	117,977	118,668	119,321	120,021	120,921	122,123
Percentage of people served by the company	%	60.44	58.39	56.2	54.8	53.9	53.8
<i>Annual growth rate of people served</i>	%		0.59%	0.55%	0.59%	0.75%	0.99%

Source: Quang Nam WSDC, March 2013.

In 2010, the QNWSDC was established as a responsible limited company by PPC decision 1529 in May 2010 where the state owned 51% share of the company. It was placed under the authority of PPC assisted by the provincial departments. As any state majority owned company, the major decisions are done by the PPC, which also appoints the Chairman/director of the company and approves the water charge, but not its operational business. The company does not work on drainages activities. The QNWSDC control presently 12 joint stock subsidiary companies, among which 9 subsidies working on water supply for 9 districts/city, one of this is Hoi An water supply enterprise and one other project management unit. Hoi An Water and Drainage Unit is one of the 11 units and provides water for the Hoi An city population.

Table 4: Water charge according to type of business and location (VND/M3)

Location	Tam Ky and Hoi An city	Nui Thanh district	Dien ban, Thanh Binh, Duy Xuyen Districts	Phuoc Son, Nam Giang, Phu Ninh Districts
Types of water charge				
Citizen consumption	5500	5000	5000	4700
Administrative and public services delivery	8000	8000	8000	8000
Production purpose	8500	8500	8000	7500
Services and business	9500	9500	9000	8500

Source: Quang Nam PPC decision 12/2012

For the last few years, water supply performance for QNWDC/Hoi An WDC as to the coverage rate and revenue generation has been in increasing trend (**Table 3**). The number of population being served by the QNWDC is increasing also each year; however the services provided by the company cannot cope with the increasing growth of the population living in the areas which they are servicing.

The price of water since July 2012 is shown in Table 4. The company has different projects to extend the water supply network which are being funded from different donors (bilateral and multilateral, including WB). By 2004, the PPC had approved a road map for water tariff increases up to 2040 in order to pay the loan to the WB (table 5). But the road map seems to be out of date. The current water charge that was approved is shown in **Table 4**.

Table 5: road map for water tariff increasing (VND/m³)

Area	2012	2014	2016	2018	2020	2022	2024
- Tam Ky, Hoi An and Nui Thanh	6.249	7.124	8.121	9.258	10.555	12.032	13.717
- Other urban areas	5.549	6.326	7.212	8.222	9.373	10.685	12.181

Area	2026	2028	2030	2032	2034	2036	2038	2040
- Tam Ky, Hoi An and Nui Thanh	15.637	17.826	20.322	23.167	26.410	30.108	34.323	39.128
- Other urban areas	13.886	15.830	18.046	20.573	23.453	26.737	30.480	34.747

Source : Quang Nam WSDC, March 2013.

The company's strategic corporate development plan (CDP) will be finalised by July 2013 and the ISO system will be implemented by the end of 2013. However, the CDP of the company does not take yet into account the impact of climate change.

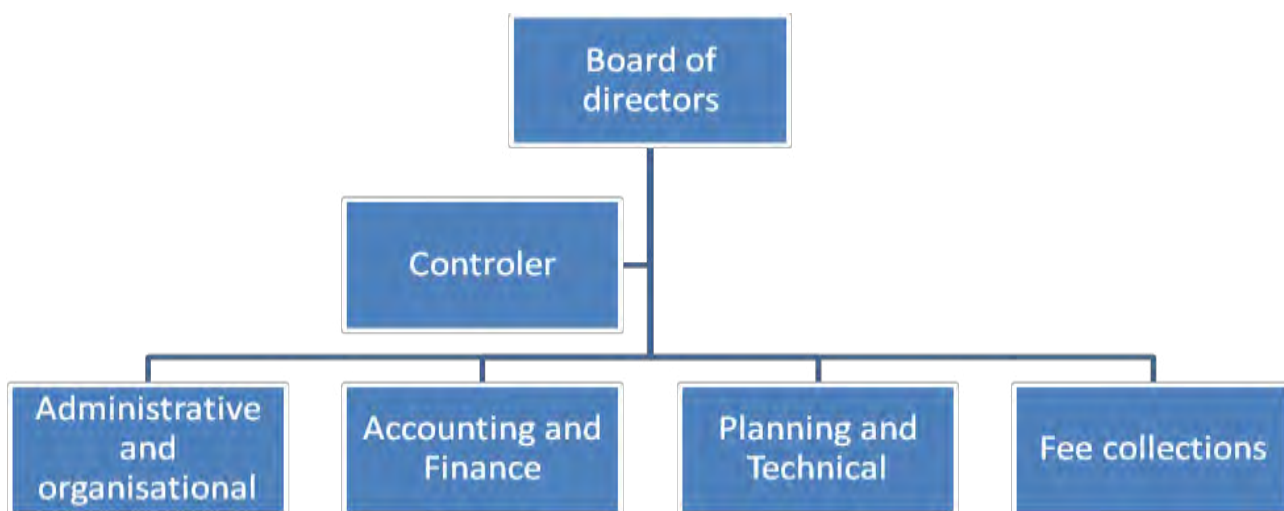
Experiences with donor funded projects

The PMU of the company has been managing quite a number of donor funded projects on water supply (Italia, WB, and Norway) and also on urban development projects. None of them, however, have any institutional and capacity building components. Last July 2013, a new PMU was set up with 13 staffs which planned to be the PMU for managing the future projects.

4.3 HOI AN COMPANY FOR PUBLIC WORK

The company was established by 1998 and has since then operated as a public services delivery agency. In 2010, there was a plan for the privatization of the company, but the plan was not implemented. In May 2010, the company was renamed as Hoi An One Member Limited Company for Public Work. 49% of the company's shares to-date has been sold to the public. The organizational structure of the company (as to administrative divisions) is shown in **Figure 6**. In addition, there are 6 working teams under the administrative divisions. These are the Green and Park Enterprise, cleaning team, transport and collection team, waste processing plant, public lighting and construction team.

Figure 6: Organizational structure of Hoi An Company for Public Work (only for administrative divisions).



The company is under the authority of Quang Nam PPC. On behalf of the PPC, CPC of Hoi An is supervising the work of the company. The CPC still considers the company as a public service delivery agency rather than as a separate company. Before 2010, the CPC gets allocated an annual budget to operate the company. However, after 2010, there was a change in their operating structure³². The CPC was ordered to commission specific urban services from

³² According to the Government decree N 31/ND-CP/2005 on production and delivery of public services and products, and the revised decree 31/2005 submitted by MPI on March 2012

the company on a contract basis. However, due to the shortage of budget, the city has always been late in its payments to the company. *Relationships with City Technical Divisions*

On behalf of Hoi An CPC, the DFP signs an annual contract with the company to provide public services. Together with UMD and DONRE the DFP finalizes the contract for liquidation and payment to the company at the end of each quarter or at end of the year. UMD supervises the quality and volume of work that the company delivers.

5 PUBLIC PRIVATE PARTNERSHIP (PPP)

This section provides an overall analysis on PPP at the macro and sectoral level, particularly for the water supply and wastewater sector, with suggestions for the local measures for the UECCA project implementation.

5.1 THE GOVERNMENT INITIATIVES IN ENGAGING THE PRIVATE SECTOR FOR THE PROVISION OF URBAN INFRASTRUCTURE AND MUNICIPAL SERVICES

Since the 2000s, encouraging private sector participation got the special attention from government. Recently, private sector participation in the public sector has become one of the priority policies in Vietnam. The government efforts in this area include the strengthening of the PPP legal framework and policies in the different sectors, particularly in urban development and urban infrastructure.

In 2009, the government issued decree N 108/2009/ND-CP on the various investment modalities of BOT, BTO and BT. One year later, the decision N 71/2010/QĐ-TTg on the regulations for piloting the Public Private Partnership Investment was approved. The PPP Office was also established a year later under Decisions 392 and 135, with the Public Procurement Agency (PPA) in the Ministry of Planning and Investment (MPI).

A number of policies encouraging PPP particularly in the urban infrastructure development and municipal services have been issued since 2007. Under the new Decrees 88/2007 and 59/2007 on wastewater management and solid waste management, the Government encourages competitive bidding in selecting operators which could enter into a performance contract with the local governments. These service agreements are seen to be potentially attractive since the sanitation fees can at least cover the operating costs.

In 2010, the Code on Urban Master Planning and the Decree on Management of Investment in Urban Areas all stated that “investment funds for urban development areas shall include funds from state budget, ODA and funds from other economic sectors”. Particularly in the Decree 11/2013 issued in January 14, 2013 on managing urban investment and development particularly stated that “Provincial authorities should develop concrete regulations to encourage

and favour mechanisms, and to call on all economic sectors to participate in investments for urban development.³³

The Prime Minister's decree N 1929/2009- Orientation of urban water supply development for the industrial zones of Vietnam up to 2025 and vision to 2050, stated that provincial authorities should "encourage domestic and international companies, organizations, and individuals to invest, research, and operate water supply system for the urban areas"³⁴. As to the water supply sector in urban area, since 2007, the decree 117/ND-CP and its revised decree 124/ND-CP on production, supply and consumption of clean water already showed the initiatives of government. For example, Article 30 says there are different favorable conditions encouraging, giving preference and supporting investing in the water sector. In addition, the government will support certain conditions for the water supply investment projects like: "making available the supply of electricity and road infrastructure; government shall pay for land clearing and give compensation for water supply projects in urban areas; water supply investment projects can get concessional loan interest support if the project borrows commercial loans; and the project do not have to pay for the land use fee".

According to the MPI and other sources, the policies and legal framework have encouraged a number of projects under BOT, BTI and BT modalities that have been implemented and are ongoing with success particularly in infrastructure investments for energy sector (see next chapter).

The government initiatives are supported by the donor communities, particularly ADB, WB and JICA³⁵. For example, currently ADB's ADF is supporting the government's PPP program in assisting the authorized state agencies (ASAs) to identify and structure sound PPP projects. To facilitate this process, ADB and the Government have partnered in the creation of a Project Development Facility (PDF) under the Public-Private Partnership Support Project (P3SP). The PDF is funded through a \$20 million loan from ADB and €8 million loan from the French Development Agency (AFD), which will make resources available to ASAs for the preparation of bankable PPP projects through the development of: (i) pre-feasibility studies to identify candidate PPP infrastructure projects; (ii) detailed feasibility studies to define technical and engineering specifications, environmental and social impact assessments with management plans, economic and financial analysis, risk assessments and mitigation plans, PPP legal framework assessments, PPP options analysis; and (iii) bid and contract documentation and negotiation support until financial closure. According to ADB, currently, the PPP program supported by ADB and other donors also includes the merging of Decision 71 on PPP and Decree

³³ Article 46 of the decree

³⁴ Article 3, of the decree

³⁵ For example, by October 2013, the Ministry of Planning and Investment (MPI), on behalf of the Government, will implement a Technical Assistance (TA) component under the World Bank's Urban Water Supply and Wastewater Project. Through this TA component, MPI plans to explore PSP options in the provision of water and wastewater services with an overall objective to increase the efficiency in service delivery and to, as far as is practical, finance investments provided the cost recovery arrangements are adequate. At the same time, Government seeks to promote an environment to facilitate the entry of the private sector in a competitive and transparent manner. This TA is to support the Government in its plan to promote the role of the private sector to address the above issues related to water, sanitation and drainage. The Government recognizes that additional efforts are needed to increase service coverage, improve the quality of service, and ensure sustainability of operations. Particular emphasis will be on developing PSP schemes aimed at improving efficiency gains to ensure that the companies providing water, sanitation and drainage services are financially viable- TOR of the TA.

108 on BOT. Until the legislation is finalized (sometime in 2014), maybe not much will be happening³⁶.

5.2 THE CURRENT MODALITIES FOR PRIVATE SECTOR INVOLVEMENT IN THE INFRASTRUCTURE SECTOR

Tables 6 and 7³⁷ show below show that a numbers of PPP have already started since 1990. During the period of 1990-2008, there were a total of 30 PPP projects. The energy sector has the most number of projects which represents nearly 50% of total investment. The water supply and drainages projects (2 among a total 30 projects) represent only a amount of the total investment (213/6,189 mill USD as total amount) under PPP in comparision with the investments in the other sectors.

Table 6: Viet Nam – Total Number of Public–Private Partnership Projects by Type and Primary Sector, 1990–2008.

Sector	Concession	Divestitute	Greenfield	Project Management and Lease Contract	Total
Energy	1	7	0	10	18
Telecommunication	1	0	2	0	3
Transport	0	0	7	0	7
Water Supply and sewage	0	0	2	0	2
Total	2	7	9	12	

Source: World Bank's Private Participation in Infrastructure Projects Database.

Table 7: Total Public–Private Partnership Projects by Primary Sector and Subsector, 1990–2008; (\$ million)

Sector	Subsector	Numbers of projects	Total Investment
Energy	Electricity	17	1,783
	Natural gas	1	1,300
	Total	18	3,083
Telecommunication	Telecommunication	3	2,013
	Total	3	2,013

³⁶B 19/7/2013, the Prime Minister had signed a decision to combine the two mentioned regulation (n 108 and 71).

³⁷ Data from the World Bank's Private Participation in Infrastructure Projects Database: Tables 1 and 2.

	telecommunication		
Transport	Air transport	1	15
	Roads	1	133
	Sea ports	5	732
	Total transport	7	880
Water and sewage	Treatment plan	2	213
	Total water and sewage	2	213
Total			6,189

Source: World Bank's Private Participation in Infrastructure Projects Database

Box 1: Water supply project in Vietnam with PSP

Manila Water's planned \$14.7 million equity injection into Vietnamese asset owner Saigon Water Infrastructure Corporation (SII) looks to value the company at around VND986.5 billion (\$46.7 million), equivalent to 19 times 2012 revenues. While this may look rich, SII has been growing rapidly, and by subscribing for 18.3 million new shares at VND16,900 each – a 13% premium to the recent trading price – Manila Water will be able to share in that growth by holding a 31.47% stake. It offers Manila Water exposure to EPC and O&M opportunities for water and wastewater projects in Ho Chi Minh City and surrounding provinces, where the market is expanding rapidly. SII's main shareholder is state-owned infrastructure company CII, with which Manila Water already has a web of business relationships. They are joint equity holders in two water treatment BOOs, Thu Duc and Kienh Dong, while Manila Water's parent, Ayala Corporation, owns 10% of CII. See more at:

http://www.globalwaterintel.com/news/2013/34/manila-water-continues-push-vietnam.html?goback=%2Egde_1672437_member_268264534#%21

In Vietnam, water supply is required to be provided on a cost-recovery basis. On the other hand, sewerage, wastewater and solid waste are considered public goods whose provision is supported and subsidized by the Government.

Box 2: PPP/PSP Models for environment sanitation projects in Urban Development

MOU signed to conduct PPP/PSP feasibility study and facilitate sharing of Singapore expertise in environmental sanitation projects.

International Enterprise (IE) Singapore, the World Bank (WB) and the People's Committee of Ho Chi Minh City (PCHCMC) officially signed a Memorandum of Understanding (MOU) in Ho Chi Minh City, Vietnam today to cooperate in the area of fostering Public-Private-Partnership (PPP) / Private-Sector-Participation (PSP) best practices in Vietnam. With this MOU, IE Singapore will partner the WB to help PCHCMC explore the options of a viable PPP/PSP business model for the Ho Chi Minh City Nhieu Loc-Thi Nghe Environmental Sanitation (HCMCES) Project Phase II¹. With the MOU, IE Singapore will work with the WB to *select a qualified Singapore-based consulting company to conduct the PPP/PSP feasibility study for the HCMCES Project Phase II. The appointed consultant will explore viable options for the private sector to be involved in the Project, potentially reducing the Vietnamese government's financing burden in infrastructure investment. IE Singapore, the WB and the appointed consultant will formulate a capacity building programme to share domain knowledge and best practices in PPP/PSP with Ho Chi Minh City. This will include discussions, seminars and workshops.*

Source: Jointly issued by IE Singapore and the World Bank, June 11, 2011, <r No 024a/11

In practice, Table 3 shows that the water supply sector has been invested mostly by the public sector dominantly which has dominated the urban development. in urban area. The government encourages private bulk water development through BOT schemes with various forms of take-or-pay arrangements, particularly for the industrial sector. Whether a BOT project needs to be approved by the national or by a provincial government depends primarily on the capital investment involved in the project. Most of the BOT water projects currently in the pipeline are large, so they require the approval of the national government. In the big cities, like Ho Chi Minh, there is a potential of joint venture of domestic and foreign company in the water supply sector (see Box 1) but not in the others cities particularly in the municipalities and small cities as reported³⁸.

Foreign private investment in Viet Nam's water sector is low. Their past experience on the policy and regulatory environment has not been conducive in providing investor confidence. The two BOT water supply projects were not successfully implemented in the 1990s³⁹. According to this

³⁸ Open ended discussion with different cities authorities in Vietnam, including of Hoi An and Dong Hoi

³⁹ A BOT bulk water supply project negotiated in 1994 between the Ho Chi Minh City Water Supply Company as off-taker and Binh An Water Corporation Limited, a special purpose vehicle owned 100% by a Malaysian consortium acting as the BOT company, proved unsuccessful. Key challenges included various project approval and

source, “key challenges included various project approval and construction delays, cumbersome land access and resettlement negotiations, lack of enforceable guarantees, and unrealistic risk allocation”.

Sanitation falls behind water provision, as mentioned, but Vietnam has recently placed sewerage and wastewater high on its priority. In solid waste, private sector, both domestic and international, has been active in the construction of landfills and treatment systems. Sanitation service providers are mainly public companies and operate with local government subsidies⁴⁰. Currently there are potentially some PPP initiatives between Vietnam and Singapore on the wastewater sector started (Box 2).

Table 8 : TYPES OF PROVIDERS- Snap shot: Extent of Provider Involvement

	Public	International private	Local private	User's Association	Others	Dominant Providers
	1	2	3	4	5	
Urban water supply	X	X	X	X		1
Rural water supply	X		X	X		3
Small town water supply	X		X			1
Sanitation and Hygiene:						
Sewerage, wastewater and sludge treatment	X		X	X		1
Desludging	X		X			1
Household sanitation product manufacturing and distribution	X		X			3
Hygiene promotion	X	X		X		1

construction delays, cumbersome land access and resettlement negotiations, lack of enforceable guarantees, and unrealistic risk allocation. The project was taken over by the Ho Chi Minh City Water Supply Company in 2004. Another BOT water project (Thu Doc Project) licensed in 1997, also in Ho Chi Minh City, proved unsuccessful, in this case involving a BOT project company consortium established by Lyonnaise Viet Nam Water Company and a Malaysian construction company. ADB, through its private sector operations window, had anticipated providing a \$31 million loan to the project company, as well as potential guarantees for the commercial bank lending for the project. The project was later abandoned in 2003 by the foreign consortium due to contract disputes (primarily related to off-take price issues) with the Ho Chi Minh City Water Supply Company.

⁴⁰ DFID domestic private sector participation, Vietnam; WSP -30 years

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Source: DFID domestic private sector participation, Vietnam; WSP -30 years

At the local levels, in the two provinces visited of Quang Binh and Quang Nam, there are no initiatives or policies yet in encouraging PPP in neither the water supply nor in the sanitation sectors. All provincial and city authorities see the need to have private sector participation in urban development and investment, however, all are waiting for instructions from the central government before they could undertake any initiatives. In Hoi An City, however, a number of initiatives on PPP with community participation for environment protection have been carried out by the city authority. While the exception is Hoi An City, the other local authorities say that there is still a lack of clear guidance from the central agencies on the rules/ regulations for PPP for the urban sector, not to mention their lack of capacity and practical experience in developing the projects with the participation of small scale of communities.

5.3 ASSESSMENT OF OPPORTUNITIES AND CONSTRAINTS FOR PRIVATE SECTOR PARTICIPATION IN URBAN DEVELOPMENT

5.3.1 Opportunities

There are several opportunities for PPP in urban development considering the encouraging legal framework and policies mentioned above. At the macro level as well at the city level, there is a very high rate of urbanisation in Vietnam (around 31% in 2012 and up to 38% in 2015⁴¹). This growth will require a lot of investments for essential urban infrastructure to meet the high demand most in particular for water supply in the growth areas⁴². As an example, the current demand for water in Hoi An City could be met only up to around 30%, but there is a plan to improve this at least up to 60%. Another constraining factor is the lack of government budget that can be invested for the projects all over the country.

5.3.2 Constraints

The analyses explains some of the reasons why the private sector does not want to participate in urban development.

The ADB has made a thorough assessment of the constraints and opportunities for public-private partnerships in Viet Nam.⁴³ This report concludes that “for an economy the size of Viet Nam and with its increasing openness to private sector participation, private investment in infrastructure has been very limited. Government approvals and support have been uncertain. Competitive bidding processes also have not been the norm. To date there are a limited number of major public investments involving foreign investors, and even far more less PPP projects with foreign investors. In 2010, the Government had issued a Decision on piloting Public Private

⁴¹ MOC source

⁴² According to MPI, by 2015, Vietnam need to have about 3200 mill USD for investing in urban water supply

⁴³ Assessment of Public-Private Partnerships in Viet Nam. ADB. Agence Francaise De Developpement. 2012

Partnerships (PPP)⁴⁴ that provides the main principles to guide PPP activities. To date, three projects out of 50 initially selected have been found feasible that will be piloted under the PPP approach⁴⁵. Low cost of services, low tariffs for infrastructure and services are considered as major bottlenecks for PPP activities. The private sector sees the government as “stop and go” when it comes to PPP policies and actions. The private sector views PPP bidding and negotiation process as unpredictable and lengthy, nor is the private sector entirely confident that the government can carry out credible pre-feasibility studies for PPP projects.” Summarising the report which has been supplemented with the Consultants’ findings, Figure 1 presents a problem tree of the PPP in Viet Nam.

Figure 7 illustrates the main causes of the limitations of PPP which in summary are as follows:

- Inadequate government commitment to PPP policies and actions— “stop and go” approach,
- Absence of an effective enabling framework for PPP,
- Lack of bankable projects in priority sectors of power, transport, and water;
- Underdeveloped finance sector.

More particularly, looking at the concrete legal framework for the water supply sector, one can notice that all mentioned decrees have been approved for some time, but still up to now there has been no clear guidance on how to implement the projects as in the case of the Decision 71/2010 on piloting the PPP. Moreover, some articles of the other legal documents can prohibit the PSP such as the decree 117/2007 which provides large initiatives for PSP in different aspects. However, there are some articles that can be constraining factors for PSP in the water supply services. For example, the article 29 on the selection of the provider for water supply indicates that: *“in a certain area, if there is an existing unit which is providing water supply services, then this unit should be indicated to be the unit providing the services”*. In article 32 it says that *“one watersupply unit can have one or some different water supply service areas, with each water supply area to be served by one water supply unit*. Since the public sector are mostly the main players, in providing the investment as well as being the service providers, these articles make it difficult for the provincial DOC to attract the private sector⁴⁶.

5.3.3 Recommendations for PPP in urban infrastructure sector particularly in the two Cities in the context of the project implementation and assistance.

The analyses has shown that the two localities are not yet ready for PPP for certain activities in some project components considering the number of constraining issues.. However, the analysis also shows that some initial steps should be taken to at least apply the PPP approach to improve the efficiency of the utilities which can be in the form of a results-based contract for the two companies, Quang Nam WSCD and Quang Binh Urenco.

⁴⁴ Government Decision 71/2010/QĐ-TTg on issuing regulation for piloting public private partnership and In 2009, the Government had issued decree on BOT N. 108/2009/NĐ-CP on investment on BOT, BTO, BT approach which has more clearly guidelines on how to implement those modalities.

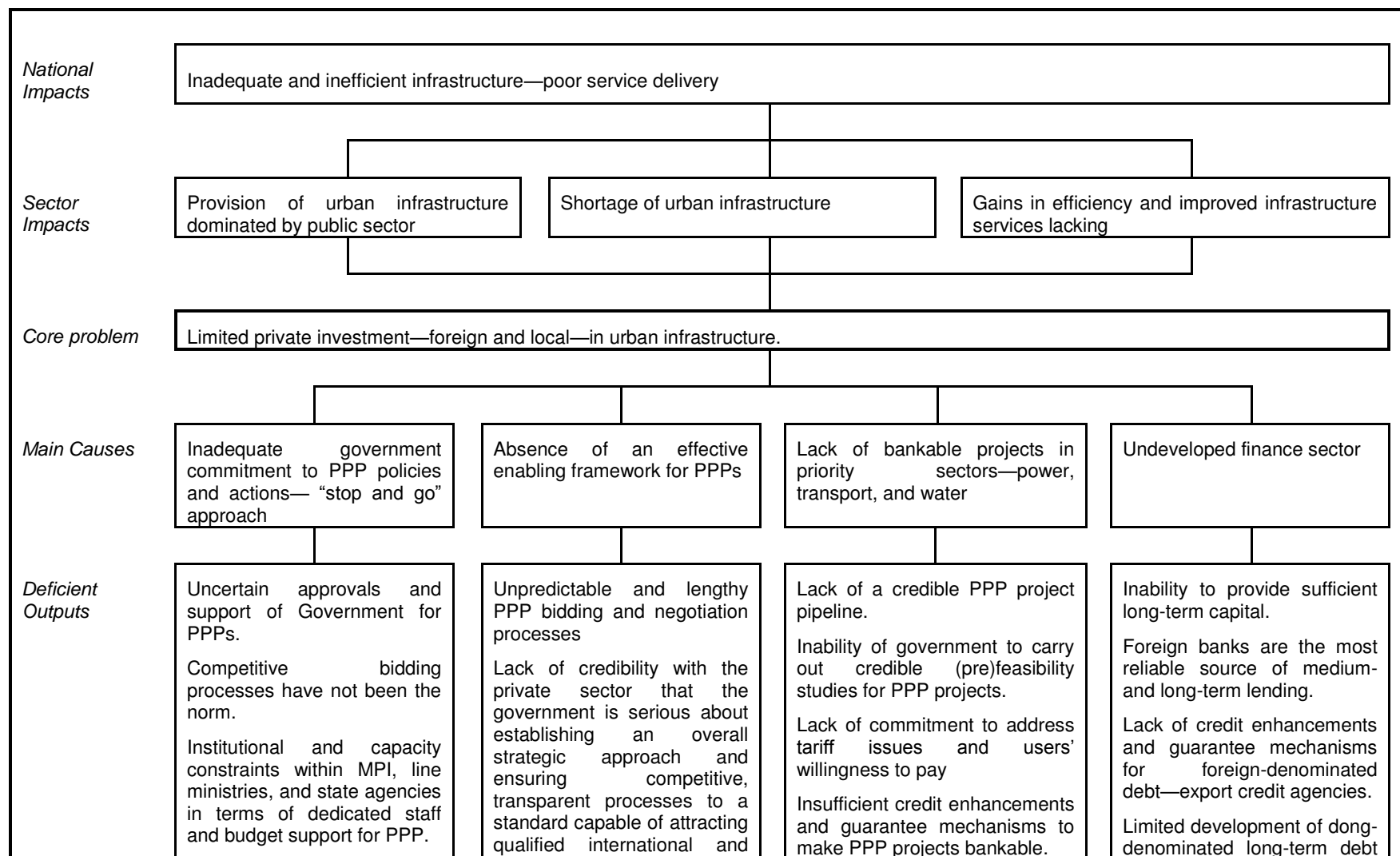
⁴⁵ <http://congty.com.vn/kinh-te/thi-truong/hop-tac-cong-tu-can-cu-hich-ve-chinh-sach-13864.html>

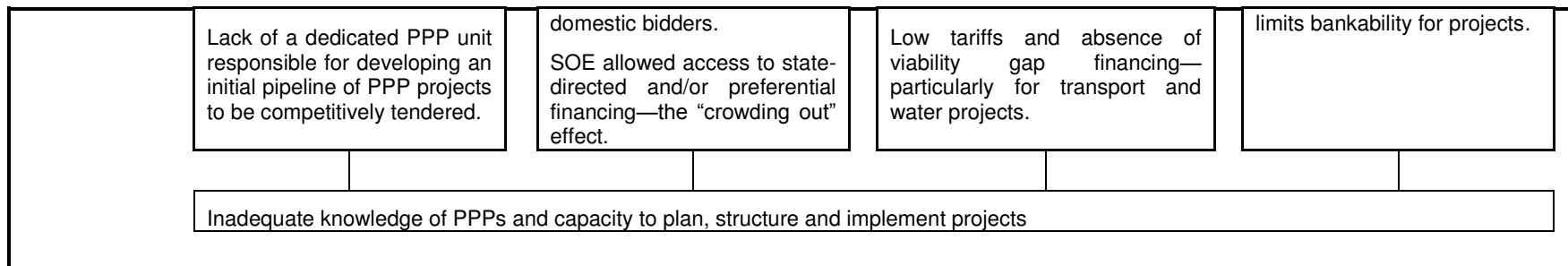
⁴⁶ Open ended discussion with the provincial DOC staff, August 2013

Hoi An WSDC as mentioned will have to upgrade its facilities by extending its capacity up to 21 000 m³. With The results-based performance contract approach could be considered for the company with a TA support for this project.

Currently, Quang Binh Urenco is given support by the WB through the TA on Environmental Coastal Cities Project which is assisting the company prepare its Corporate Development Plan. The TA of the loan project can support Urenco in supervising and monitoring the implementation of this CDP for the company.

Figure 7: Private Sector Participation Problem Analysis





Source: DFR of ADB PPTA- Secondary Cities Development Project, Volume 5- Appendix 6

6 PROJECT MANAGEMENT ARRANGEMENTS

The main stakeholders of the Project are:

- EAs: The two provinces, Quang Nam PPC and Quang Binh PPC, are the Executing Agencies (EAs),
- IAs: The QN WSDC and the QB URENCO are the two Implementing Agencies (IAs).
- Sub-borrowers: The two Provinces and the WSDC will sign the subsidiary loan agreements with the State Government represented by the MoF.

According to the government decree 38/2013 (article 4, clause 2), the two IAs are the project owners. However in the case of our project, the suggested rules are not applicable since the two PPCs will be the direct borrowers for most of the loan, and the two IAs shall be entrusted with implementing the projects.

Both Implementing Agencies have been corporatized and have experience in managing donor-funded projects (World Bank, Norway, etc.), however, they don't have yet any experience directly with ADB funded projects. The two IAs are under the provincial authorities. The other project sub-components are partly under the supervision of the relevant provincial technical departments that will handle the O&M of some project components once they are completed, except those under the responsibilities/ mandates of the two IAs (for example: for WW in Dong Hoi, the O&M will stay under the direct responsibility of URENCO).

The following sections will i) analytically describe the current situations of project management for the two localities and then ii) propose the requirements for project arrangements during the implementation and after the implementation (for O&M work). The proposed requirements take into account the current actual conditions of the projects, and the requirements under Government Decree N. 38, dated April 2013, on the use and management of donor-funded ODA and concessional loans.

6.1 Current Status in Quang Nam and Hoi An

6.1.1 Project Steering Committees (PSC)

On April 2013, the PPC of Quang Nam approved a decision to establish the Project Steering Committee (PSC) for the PPTA 8171 VIE47. The PSC is responsible for managing and providing guidance to the related agencies to implement the PPTA according to the plans and regulations, and advice the PPC in establishing the PMU for the PPTA.

In this decision, the Chairman of Quang Nam PPC was designated as the Chairman of the PSC, the Vice Director of the DPI as the Vice Standing Chairman of the PSC, and the Director of QN WSC as Vice Chairman of the PSC. There are eight other members from the different technical departments and the City leader, these are as follows:

- Vice Director of Finance Department.

⁴⁷ PPC of Quang Nam decision 1101/QD-UBND on establishment of PSC for PPTA Project on UE and CCD of Hoi An city funded by ADB.

- Director of Department of Construction.
- Vice Director of PPC office
- Vice Chairman of Economic Zone Chu Lai
- Vice Director of DONRE
- Vice Director of Province PMU
- Vice Chairman of Hoi An City PC
- Vice Chairman of Dien Ban District PC

Looking at the project components under this PPTA, the Department of Transportation (which is responsible for the provincial roads, access to Cua Dai Road and Road 608) and the Department of Agriculture and Rural Development (which is responsible for the Lai Nghi Reservoir) should be members of the PSC. (See section 1.2.2. PSC and PCC for the project implementation).

6.1.2 Project Management Unit

On July 31, 2013, the PMU for the PPTA 1871 of Quang Nam was established with 13 members. It is expected that this PMU will be the same PMU for the project implementation. The current PMU is made of the following members:

Project structure	Position	Qualification
Project leaders		
1	Director	Dr. and Engineer
1	Vice Director	Engineer
Project staff/numbers	Project staffs	
1	Chief Accountant	Bachelor in Economics
2	Project members	Masters in Architecture
6	Project members- two of them are Heads of water supply units in Hoi An and Dien Ban	Engineer
1	Project member	Bachelor in Economics
1	Project member	English degree diploma
13	Total	

6.2 Suggestions for the Project Implementation Arrangement in the Future for Hoi An Project

The funds flow arrangements are not yet final at this stage. According to the latest MoU, the funds might be loaned to:

- The QNWSDC through the Vietnam Development Bank (VDB) with a guarantee of the Quang Nam PPC for the Lai Nghi Reservoir, and the Co Co UDA sub-components as revenue-earning sub-projects directly related with the business operated by the WSDC;
- The QN PPC for the other non-revenue earning sub-components (flood management and roads sub-components).

Quang Nam PPC is the Executing Agency for the whole project and provides a guarantee to Quang Nam WSDC for the part of the loan provided to it.

Quang Nam WSDC will be the Implementing Agency for all components of the project. The Decree 38 clearly describes the power and tasks of the Project Owner - PO (Annex 1). However, in this case, one of the tasks of the PO should fall with the Quang Nam PPC which will have the responsibility for the full and timely repayment of the loan (as direct borrower and as guarantor).

Decree no 38/2013, which guides the Management and Use of Donor Funded ODA and Concessional Loan, regulates the mode of project management, specify the duties and authorities of the Executing Agency and the Project Owner during the process of the project implementation.

The decree also states that it is the duty and authority of the Executing Agency (the Quang Nam PPC) to establish the organizational structure and arrangements in the project implementation. Below are the necessary requirements that the organizational structure and arrangements that the project must take into account.

6.2.1 Roles that the different provincial departments and city divisions should take into account during and after the project implementation.

The roles mentioned below for the provincial departments and city division during and after the project implementation should consider including the future PMU structure and its working mechanisms.

The suggestion for the project components to be managed after the project completion is presented in the table below with information from the QN WSDC and the consultant, based on the current institutional arrangement.

Project components	Agencies in charge of O&M after project implementation (as mentioned by the director of QN WSDC)	Agencies in charge of O &M (suggested according to the current institutional arrangement at the province and city)
Lai Nghi reservoir -	QN WSDC (the Hoi An WSD)	QNWSD (HA WSD Division) with contribution of DARD's related unit.
Coco River UDA	QN WSDC	QN WSDC (during implementation and until the end of commercialization) then Hoi An City PC

Road 608	PPC (DOT)	PPC (DOT)
Access to Cua Dai bridge	PPC (DOT)	PPC (DOT)
Phat Bao Lake in Hoi An	Hoi An CPC	Hoi An Public Works Company (CPW)

DoF

The most important concern here is that the role of the Department of Finance (DoF), in coordination with the Treasury, should be clearly defined for this project, including their role in the PSC. Traditionally, for ordinary ODA projects, the DPI is responsible for the project supervision⁴⁸. Since this will be an OCR funded project, it is important that the DoF plays a proactive role in the project preparation already, but this has not happened yet. The non-involvement of DoF in the project preparation has shown that the public financial management capacity of the PPC, as well as its advisory agencies, needs to be improved. In addition, the role of the DoF during and after project implementation should be clarified. More specifically during and after the project implementation, DoF should strictly monitor and check the cost effectiveness of the project, and ensure the re-payment of the loan by the province. Since a numbers of the project components are not under the IA's mandate (for example, Road 608 and Access road to Cua Dai Bridge), DoF should also monitor the costs for O&M for these components as well as the direct and indirect revenues from the other components (not under the IA's O&M).

DoT

Other project components are the provincial road N 608 and the Access road to Cua Dai Bridge. The current DoT's PMU will be responsible for the O&M of these roads. It is important also that the DoT should be involved in the project implementation and also handle the project components. The department should be a member also of the PSC and ideally should be involved also in the PMU during the project implementation.

DARD

The La Nghi reservoir component technically is under the DARD's unit management. However, it has been indicated that this will be handled by the IA Quang Nam WSDC. Since the reservoir would be operated also as a water source for the irrigation activities after the project implementation, the issues on work/mandates and fees collection between DARD unit (Provincial One limited company for Irrigation) and QNWSCD should be worked out and clearly clarified.

City PC and Divisions

The City PC Urban Management Division and Economic Division should be involved in the project implementation since Phat Bao Lake and Co Co River's Urban Development Area are in the city area.

Currently, Hoi An Public Work Company (CPW of Hoi An) is responsible for the city environmental services (such as solid waste management, parks and gardens, O&M of drainage system and footpaths...) and is also in-charge in implementing the French wastewater project. Probably after the Phat Bao Lake has been improved, this should be handled also by CPW. In this context, the staff of the company should be closely involved in the project component implementation.

Project Steering Committee (PSC) and Provincial People Committee

⁴⁸ It should be notice that there is a need to have a guidance of MOF for the new government decree 38/2013 on the implementing of the on lending loan project.

The main function of the PSC is to guide and coordinate in monitoring and implementing the project/ program⁴⁹.

The mentioned PSC could well become the PSC for the ADB project once it is implemented. Since some components of project include roads construction and lake/ reservoir improvement, it is suggested that the inclusion of DOT and DARD should be considered. In addition, once the roads are constructed, their O&M can be handled by the PMU of the DOT as these are provincial roads

The current decision does not clearly state yet the functions of the PSC. Generally, the PSC needs to provide direction, supervision and coordination of the implementation of the Project. It should ensure the implementation of the Project according to the agreed timetable and plan, and also help resolve problems as they arise during project preparation and implementation.

The PPC is the one to borrow and the one to provide a guarantee to the Quang Nam WSDC. The PPC is also the executing agency. In which case, although the QN WSDC is the project owner (according to the decree 38), the PPC should have one important additional function besides the functions of the executing agency as described in the decree 38, which is to have responsibility for the full and timely repayment of the loan according to the agreed on lending conditions. So the main functions of the PPC for the project are the following:

- Making decisions in organizing the PMU for the project implementation.
- Approving the master plan on project performance; summing up and approving the annual fund allocation plans of the project.
- Carrying out tenders as prescribed under the existing laws and regulations on tenders.
- Ensure that the project is implemented on schedule with the desired quality in order to achieve its planned targets.
- Taking responsibility for the losses, wastefulness, corruption and misdeeds in the management and utilization of the loans being managed by the line agencies.
- Full and timely repayment of the loans in line with the agreed lending conditions.
- Implementing other tasks and powers as prescribed by law, International treaties on ODA and concessional loans of the project.

Given the strategic role of the PSC as well as the complexity of the project, it is suggested that the PSC meet at least once every six months. Other meetings may be called also upon the request of the PMU.

Structure suggested for the PSC

- Department of Finance.
- Department of Construction.
- Department of Transport
- Department of Natural Resources and Environment
- Department of ARD

⁴⁹ Government decree 38/2013

- PPC office
- Vice Chairman of Economic Zone Chu Lai – the PPC should clarify why this chairman in this PSC
- Hoi An City PC
- Dien Ban City PC

6.2.2 Project Management Unit

According to the decree 38/2013, the PMU shall have the following specific tasks to support the project owner:

- a. Prepare the master plan and the detailed annual plan on the implementation of the project;
- b. Prepare the implementation plans and implement the project;
- c. Conduct procurement tenders and manage the contract activities;
- d. Handle disbursements, financial and asset management of the project;
- e. Follow up and evaluate the status of the implementation of the project;
- f. Prepare to carry out taking-receipt and hand- of outcomes of the project after completion; conduct the audit work, handling of project assets; prepare the completion report and financial reconciliation report of the project;
- g. Perform other tasks under the framework of the project assigned by the project owner.

It should be noted that Quang Nam WSDC is a business making company under the PPC authority and the project is multi sectoral related and will be implemented in Hoi An city area. There will be a need to have effective coordination mechanism between the PMU and the different provincial and city technical agencies. This coordination mechanism should take into account the above-mentioned roles of the different agencies during and after the project implementation.

6.2.3 Project Management Unit members

As the project and all its components are implemented in Hoi An city area, and given that its components are particularly related to the city's responsibility and mandates, it is suggested that there should be an effective coordination with the city government. A representative of Hoi An city should be appointed to the PMU as PMU staff member. The city's representative staff will be responsible in coordinating with the city administration all related works.

As mentioned, the project will need to implement some advance actions. Quite a number of the current PMU staff are working full time in other positions. For the future staffing of the PMU, a recommendation should be considered that the staff to be assigned should work full time for the project. There is the need to have separate staffs working on: i) procurement; ii) planning and monitoring; iii) on environment and resettlement, as well as on project management and iv) on

capacity building and institutional development. Currently, the present PMU has 13 staff, but a number of them are working as directors or heads for some units of the QNWSDC.

6.3 Current Situation in Quang Binh- Dong Hoi

6.3.1 Project management Unit

On May 09, 2011, the Quang Binh PPC issued a decision to establish the PMU for the PPTA 187150. The structure of the PMU is presented in the table below. This PMU will be expected also to be the PMU for the project implementation in the future, as mentioned by Urenco Quang Binh. According to the staffing qualifications, all the staff of the current PMU have different professional degrees in procurement, project management, project financial management, safeguard and environment, contract management, resettlement and social welfare. This is due to the experience of Urenco Quang Binh in the implementation of the previous WB environment project.

Current staffing of the PMU for the PPTA project in Quang Binh.

Project structure	Position	Qualification
Project leaders		
1	Director	Dr. and Engineer
1	Vice Director	Master in Urban management; Wastewater Engineer
1	Vice Director	Bachelor in economic
Project staff/numbers	Project staff:	
1	Chief Accountant	MBA
1	Project Technician	Wastewater Engineer
1	Project Technician	Construction Engineer
1	Project Technician	Transportation Engineer
2	Project Officers In-charge of Institutional Development	Bachelor in Environment
1	Translator cum Admin	Bachelor in English
1	Translator	Bachelor in English
12	Total	

As mentioned by Urenco, the Project Steering Committee will be established once the project is approved.

⁵⁰ Decision 1015/QD-UBND.

6.4 Suggestions for the Project Implementation Arrangement in the Future for Dong Hoi Project

6.4.1 Roles that the different provincial departments and city divisions should take into account during and after the project implementation.

According to Urenco, after the project implementation, Urenco will manage only the components under their mandates which are wastewater, electricity and solid waste. The rest of the project components will be handed to the other related technical divisions or agencies. The same idea was confirmed also by the provincial authority. Although this might not be the best institutional arrangement for the project's sustainability, as mentioned, however, in the end the PPC will be the one in charge for the full repayment of the loan⁵¹.

DoF

The role of the Department of Finance (DoF), in association with the Treasury, should be clearly defined for this project, as well as for their work in the PCC, which plays the role of the executing agency. As already mentioned traditionally in Vietnam, for the ordinary ODA project, the DPI is usually in charge of project supervision. Since this is an OCR project, it is important for the DoF to be actively involved already in the project preparation; however, this has not yet been the case. The plan for the loan repayment proposed by the Quang Binh PPC before the Midterm workshop (Appendix F- Financial Analysis of the Interim report) shows how much capacity for public financial management would need to be provided to the executing agency and its advisory agencies. It also shows the crucial role of the DoF particularly during and after the project implementation. DoF should closely monitor and review the project in the terms of cost effectiveness, and also monitor the province to ensure its repayments for the borrowed loan. Since there are a number of project components that are not under the IA mandates, the DoF should also consider to monitor the cost for their O&M, as well as the direct and indirect revenues from these other components (not under the IA's O&M).

DARD and City Economic Divisions

Technically, the river embankment will be under the DARD's Agency for irrigation and flooding protection which will be the one who will do the project appraisal for this component. For Quang Binh and Dong Hoi, the issue as to who would manage the dike would depend on who shall be the owner of the investment, while the city shall be delegated to manage the dike if this is of category 5. Since the category of the future dike is not clear, this issue still needs to be clarified. If this invested dike shall be of category 5, the city administration's economic division will handle the management of the dike once the project is completed. In addition, the road network in Bao Ninh area will be less than 15 meters wide. Once this is built, the O&M will be handled also by City. The City's Finance and Planning Division, and Urban Management Division play important roles on the budget allocations for O&M and quality control, respectively.

According to the MOU dated 4-8 July 2013, for the Dong Hoi project, the PPC of Quang Binh will be the borrower and will be responsible in repaying the loan, while the Quang Binh Urenco has been entrusted with the implementation of this project. In this case, the Quang Binh PPC will be also the project owner and executing agency.

⁵¹ According to the MOU dated 4-7 July, the PPC of Quang Binh is responsible to repay the loan. According to the latest MOU, dated 23-27 September of ADB and GOVN, the MOF suggested that Quang Binh should borrow only half of the 40 mill USD due to its capacity of the repayment.

Government Decree N 38 on Management and Using ODA and Concessional Loans from Donors dated April 23, 2013, regulates the modality of project management, the duties and authorities of the Executive Agency, the Project Owner and the PMU during the process of the project implementation.

6.4.2 Project Steering Committee and Provincial People Committee

The PPC will be the borrower and executing agency for the project. As mentioned, beside the function of the PPC as executing agency, as described in the decree 38, it shall also be mandated to repay the loan in full and on time as agreed under the loan conditions. In this case, the functions of Quang Binh PPC are⁵²:

- Making decisions in organizing the PMU for the project implementation.
- Approving the master plan on the performance of the project; summarizing and approving the annual budget allocation plans of the project.
- Carrying out the procurement tender as prescribed by the existing laws and regulations on tenders.
- Organize the supervision and evaluation of the project implementation status to ensure that the project is being implemented on schedule with quality and to ensure it achieves the planned targets.
- Taking responsibility for the loss, wastefulness, corruption and misdeeds in the management and utilization of the loans under the management of line agencies.
- Repay fully and on time the loan borrowed and to meet all the conditions of the loan.
- Implement the other tasks and powers under the project as prescribed by law, International treaties on ODA and concessional loans.

The PSC will need to have the function to provide an overall guidance and steer the project implementation whenever there are changes in the project implementation plans. It is necessary to consider the role and working modality for the members in the PSC to avoid being cumbersome??? in the structure. Given the strategic role of the PSC as well complexity of the project, the PSC need to have a meeting once per six month, and it may also be called to meet upon the request of the PMU.

Structure of the PSC

As mentioned by the Urenco, the PSC shall only established once the project is approved. Given the project nature and its components, it is suggested the following members/departments/agencies should be in the PSC:

- PPC of Quang Binh
- Department of Finance.

⁵² According to the decree 38/2013

- Department of Planning and Investment
- Department of Construction.
- Department of Natural Resources and Environment
- Department of Agriculture and Rural Development⁵³
- Dong Hoi City PC

6.4.3 Project Management Unit

According to the decree 38/2013, the future PMU shall have the following specific tasks in supporting the project owner:

- a. Prepare the master plan and the detailed annual plan on the implementation of the project;
- b. Prepare the implementation plans and implement the project;
- c. Conduct the tenders and manage the contract activities;
- d. Handle disbursements, financial and asset management of the project;
- e. Follow-up and evaluate the status of the implementation of the project;
- f. Prepare to carry out taking-receipt and hand-out of outcomes of the project after completion; complete the audit work, handling of assets of the project; prepare the completion report and financial reconciliation report of the project;
- g. Perform other tasks under the framework of the project that may be assigned by the project owner.

Quang Binh Urenco is a business making company under the authority of the PPC and the project is multi sectoral related. This project is quite different from the current WB funded project, which is mostly related to the sectors under the mandates of the Urenco. It is important to have an effective coordination mechanism between the PMU and the different provincial or city technical agencies. This coordination mechanism should take into account the above-mentioned roles of the different agencies during and after the project implementation.

Project Management Unit Members

As the project and all its components are implemented in Dong Hoi city area, and given its components particularly related to the city's responsibility and mandates, it is suggested that there has to be an effective coordination with city government. A representative of Dong Hoi city should be assigned in the PMU as one of the PMU staff members. This city staff will be responsible in coordinating with the city administration all related works. In addition, it is suggested that the Urenco PMU should learn the new process in managing an ADB multisectoral project that is quite different of its current WB funded project, particularly in the capacity building component.

⁵³ There are some components of project including the Nhat le rive embankment, urban development area, so it is essential that the DAR, and DOC should be in the PSC.

As mentioned, the project will implement some advanced actions. Quite a numbers of the current PMU members are also working full time in others position. For the future staffing of the PMU, a recommendations should be considered that the staff to be assigned should be working full time only for the project. Currently, the PMU has already assigned a separate staff to work on institutional development and capacity building. There is a need also to have separate staff working on: i) procurement; ii) planning and monitoring; iii) environment and resettlement as well as on project management

7 CONCLUSIONS

This is a final draft report for the Institutional Review for the Urban Environment and Climate Change Adaptation Project which presents an assessment of the findings and the final implications of the related TA tasks as planned. The following discussion provides an overview of the report.

7.1 CENTRAL LEVEL

Vietnam has a strong committed to deal with environment protection and climate change adaptation through its comprehensive legal framework and policies, as well as through its structured institutional arrangements. The government also strongly encourages the Public Private Participation approach, and there are currently a number of pilot initiatives under implementation.

Delays in issuing different guidance as well as overlapping responsibilities for urban management and environment, and climate change issues at the different levels (guidelines of central government are often issued late and do not adequately define the roles and responsibilities of the various agencies) have made these policies less effective.

Since there is a strong policy of decentralisation towards the local authorities, there is a need to clearly define the responsibilities for policy making, planning and regulation, implementation, management, monitoring, pollution control, enforcement of regulations, and imposition of fines, amongst others, at the local levels.

Several Ministries as well as provincial and city agencies are involved in the development and management of urban infrastructure as well as environment issues. The responsibilities are divided between MOC, MOT, MARD, MONRE and their mirroring agencies at lower levels. There is a lack of vertical as well as horizontal coordination between the Ministries and agencies which could result to fragmented or conflicting policies and legal laws, as well as in their implementation. For example MOC and MOT have issues in managing roads in the cities where the Law on Road Management (2008) stated that MOT is in charge of managing roads, including roads in cities, but MOC has issued a separate circular⁵⁴ on their guidelines for managing roads in the cities. There will be a revised Environment Protection Law, including its guidelines for implementation, as well as several decrees related to PPP and LDIF, which are another urgent issues that need to be address very soon at the national level.

This is the first ever OCR project for the provinces applied under Decree N 78/2010/ND-CP. Strategically, it is important that the central government agencies of MOF, MPI and SBV provide clear guidance to the provincial authorities on how to implement the decree. This was not the case, however, with the government decree 38/2013 on the managing and using of the ODA and concessional loan of donors, dated April 2013.

7.2 PROVINCIAL LEVEL

⁵⁴ MOC circular N 04/2008 dated on February 2, 2008 on guidelines on managing road in cities.

Officially, the institutional arrangement for environment and climate change adaptation is set up for the two provinces and a provincial action plan for implementing NTP on CCA have been developed. The lack of human and financial resources, and ineffective coordination, as well as the limited budget allocated for awareness raising, in addition to unclear functions are still prevailing issues.

The roles of DONRE and DARD as well as DOT and the cities in flooding infrastructure and dike system management, and DOC and DOT in managing urban roads as mentioned in the MOC circular above, also require clarification. In addition, to ensure the quality of the construction of investment projects, as well as the environment assessment at the provincial level, will require additional resources allocated to DOT, DOC and DONRE.

Since DOF will play crucial role in advising the sub borrowers to pay back the OCR loan, as well as the allocated budget for O&M of invested infrastructure among others, its roles in the ODA project appraisal and implementation and in appraising the sub borrowers' capacity and plan of payment should be officially established. This issue also needs to work in coordination with provincial DPI.

Two implementing agencies can be sub borrowers. The two PPCs are direct borrowers and provides the guarantees for the two IAs. The key issue, however, is that these two companies also provide the urban services to the two cities as allocated by the PPCs. The institutional arrangements vary and the area of jurisdiction can be province-wide or for one city only, or even in between. But establishing these companies as monopoly service providers somehow is a potential barrier to competition in urban services delivery offered by the private sector. In addition, PPCs or CPCs often see themselves as service providers rather than clients, and may be reluctant to have the private sector involved in the management of urban services. The government decree N 31/ND-CP/2005 and its revised draft⁵⁵ submitted by MPI mentions that there are alternatives that involve different models for managing public services including urban services in the cities. There is a need for proactiveness and responsiveness by the local authorities to implement these policies and guidelines in their localities

Furthermore, the level of autonomy, role and responsibilities of the two companies need reforms to improve the sustainability of urban management. There is limited autonomy and responsibility for the Quang Binh URENCO as its level of autonomy remains limited since the requirement for PPC approval extends into most of their management and operating decisions, including investment, tariff setting, determining service levels, staff salaries and benefits, maintenance and capital expenditures, and senior staff appointments. The limited autonomy has constrained its ability to operate efficiently on a financially sustainable basis. It is planned that Hoi An WSDC will expand its capacity from 6 000 to 21.000 m3. The initial step for piloting public private partnership can be applied with a results-based performance approach for the Hoi An WSDC.

7.3 CITY LEVEL

The Public sector is the dominant player in urban management as well as environment improvement activities. The legal framework and guidance for the PPP are lacking.

As mentioned above, all activities related to urban environment and climate change adaptation in general continue to be nearly exclusively provided, owned, financed, built and operated by the

⁵⁵ Government decree N 31/ND-CP/2005 on production and delivery of public services and products and revised decree 31/2005 submitted by MPI on March 2012

public sector, either directly through the local authority or by way of quasi-independent State Owned Enterprise. While most policy implementation guidelines are decided at provincial level, the related state management and technical agencies at city level are in charge of planning, budgeting, supervising, monitoring and reporting. The public utilities, whether they are provincial or city owned, like Quang Nam Water Supply Company, Hoi An Public Works Company, or Quang Binh Urenco are in charge of implementing all activities (including O&M)/projects related to water supply and city environment services. At the sametime, although the central and local government agencies see the importance of applying the PPP approaches in the sector, there remains a number of issues that has been slowing the start of this process.

There are no official institutional arrangements yet for climate change activities in the two cities. The human and financial resources are limited and not adequately allocated.

The flooding situation is a primary problem and remains as a major concern for both cities in comparison with the climate change issue. For the former, at the provincial, city, and commune levels, an extensive network of institutional arrangements are already set up. At the provincial level, there is a Provincial Management Board of Flood Protection in which has full time working members; at the city level, there is the City Management Board of Flood Protection which has the participation of all representatives of the city divisions as well as the commune's officials.

In contrast to the flood protection issue, the responsibilities for climate change adaptation are not in such fortunate situation. In Quang Nam, with the support of a Danida program, the institutional arrangements are quite good, but not as yet in Quang Binh province. At city level, while Hoi An already has a commitment as indicated, there are no "official arrangements" as to responsibilities to work on climate change issues. No climate change board management exist yet for either city. In Dong Hoi city, there is no official assigned to work on the climate change activities, and likewise there is no officer also at the commune level to work on this issue. The situation is better with Hoi An city, where two additional staff will be allocated to work on climate change issues. The city board of climate change adaptation will be set up soon, and for each commune, there will be one officer in charge for environment issues who could be called upon to work on CC issues as well.

Lack of effective coordination and information sharing between programs funded in UE and CCA and in urban management; inadequate human resources allocation and overlapping functions between related divisions.

For the two cities, there are a numbers of donors and government funded projects and programs, however, there is no agency or mechanism for their overall coordination and information sharing for all projects/programs funded in UE and CCA. The leaders as well as managers therefore, do not have yet have access to a full set of information/data on the different projects/programs that might be necessarily useful for making optimal decisions and plans for the future. Currently, climate change functions as well some tasks related to urban management need to be clarified among the technical divisions and public services delivery units.

8 RECOMMENDATIONS AND NEXT STEPS

The recommendations consist of a suggested TA for ID with the corresponding costs for each city, and a human resources development and training program.

For each city, there are different technical assistance and indicative cost suggested as bellow. – See the new versions sent to Gary last week on TORs, Cost, Project Arrangement Implementation....

8.1 INDICATIVE TERMS OF REFERENCE FOR THE TECHNICAL ASSISTANCE FOR THE PROJECTS IN HOI AN AND DONG HOI

On the basis of different technical, institutional, procurement and financial assessments a comprehensive project management and technical support package has been developed covering both project cities. The existing project management units (PMUs) of the two IAs (Quang Nam WSDC and Quang Binh URENCO) will be strengthened through staff training, and the provision of vehicles and equipment. Relevant staff from each PMU will receive training at the start of the Project in financial management and reporting, and ADB disbursement and procurement procedures. The PMUs will establish and maintain a project performance management system (PPMS) to monitor project implementation and performance in meeting project targets. An international project implementation specialist will be recruited to provide technical advice to PMUs in technical design review, procurement, and project supervision. International and national experts in the following disciplines will also be provided to support project management: (i) civil engineering/project supervision; (ii) procurement/contract management; (iii) climate change/urban planners; (iv) financial management; (v) resettlement supervision; (vi) environmental monitoring and (vii) gender training. The outline terms of reference and full list of experts are in the Terms of References included in the PAM

The support contract will also provide funds to increase public awareness by launching Information Education Communication (IEC) campaigns to promote the connection of households to the public water supply and sewer system, citing the benefits of the program to the homeowner and environmental improvement to the community and the provision of a revolving fund in each city to support subsidies for household connections, thereby encouraging connection and to reduce the financial burden on the disadvantaged households, especially the poor.

8.2 RECOMMENDED CAPACITY BUILDING AND HUMAN RESOURCES DEVELOPMENT

A Training Needs Analysis (TNA) of the proposed Urban Environment and Climate Change Adaptation Project (the Project) was identified and conducted. Given that the project is planned to be implemented in 2015, it is necessary to reassess the initially identified priority training topics and detailed further during the loan project implementation.

Key topics have been identified according to the project components, required general knowledge and skills for the implementing agencies to carry out the project activities. There are 4 activity areas for the CB program. The topics listed in Table 8 are indicative and will be made detailed during the period of the loan project implementation by the project loan consultant.

Training Target Groups

There will be diverse target groups for training at the provincial, city and commune/ward levels, which are as follows:

- **Project-appointed Staff:** These are the members of the provincial steering committee (PSC), and the project management unit (PMU) that are appointed for the duration of the project only. The major training needs of this group, therefore, relate to the capacity to implement the project effectively and efficiently.

-
- **Staff of Collaborating Agencies:** These are the staff/representatives of DPI, DoNRE, DARD, Tourist Department, Department of Construction; Department of Finance, Department of Transport and Administrative Office of People Committee at the provincial and city levels. This group will continue in their assigned roles after the project is completed. Their training, therefore, should be both to help them to implement the project as well as also to provide them with the skills they can continue to apply after the end of the project, such as on the project component of O&M.
 - **Staff of Project Implementing Agencies:** These are the staff of Quang Binh URENCO and Quang Nam Water and Drainage JSC. Their training should be focused on providing them updated knowledge and skills in terms of urban environment and climate change adaptation which impacts on construction, and related sub-project activities in their locations.
 - **Staff of Communes/Wards in the Cities:** These are the groups who would be affected/benefitted by the sub-project activities. As the main beneficiaries at the commune/ward levels, these groups will be important to the success of a “bottom-up” planning and effective participatory approaches.

Table 8 : Indicative topics of training for the two projects

Area	<i>Project Management Training</i>	Improving urban environment	Climate change adaptation	Generating direct revenue
Topics of training	<p>Project financial and Accounting Management</p> <p>Public Finance management</p> <p>Introduction workshop on urban environment and climate change adaptation</p> <p>Government and ADB Procurement policies and procedures</p> <p>O&M</p> <p>Gender and development</p> <p>Safeguard policy of Vietnam and ADB</p> <p>Economic efficiency analysis for project activities on urban environment and climate change adaptation</p> <p>M&E for Project management and operation</p>	<p>- Community participatory -based urban management</p> <p>- Management of urban environment</p> <p>Solid waste and wastewater management</p> <p>Management and protection of water sources pollution</p> <p>Management of urban air pollution</p> <p>- City planning in the context of climate change adaptation</p> <p>Management of urban sanitation to adapt to climate change</p>	<p>- Management of natural risks</p> <p>- Optimizing urban infrastructure for adaptation to climate change</p> <p>- Formation of a sustainable urban energy system</p> <p>- Construction in a green city</p> <p>- Developing local plan for climate change adaptation</p> <p>- Regulations and new standards in constructions</p>	<p>- Effective management of revenues from wastewater systems</p> <p>- Effective management and saving of fresh water</p> <p>- Result based performance for utility efficiency (WS and WW)</p> <p>- Public Finance Management</p> <p>- Models of green and friendly tourism</p> <p>- Tourism services</p> <p>- Protection of drainage infrastructure.</p>

Appendix A- Main mandates of provincial technical departments

Article 122 of the Law on Organization of People's Councils and People's Committees indicates that each PPC should have between nine and eleven members. Articles 128 and 129 stipulate that technical departments under PPC are responsible for advising, and helping PPC in performing its state management functions in the province. Article 3, Decree No. 13/2008/NĐ-CP of the Government on the Organization of Technical Agencies under the PPC, dated 4 February 2008, stipulates that these agencies are under the direction, management and must conform to the organizational and staffing structures stipulated by PPC. And at the same time they are under the technical guidance, supervision, inspection of related national agencies. Technical departments under PPC are responsible for advising and helping the PPC in undertaking's state management functions; they include:

Department of Home Affairs (DOHA)—responsible for all aspects of internal affairs. This includes organizational and staffing structures, administration reforms, human resources management and development for local government cadres, personal matters for civil servants and government officials.

Department of Construction (DOC)—responsible for construction, building materials, design and architecture, construction planning, urban infrastructure, industrial zones, processing zones, high-tech zones, urban waste and urban development.

Department of Judiciary (DOJ)—responsible for all legal aspects of the provincial government.

Department of Planning and Investment (DPI)—responsible for planning and investment, including coordinating physical plans, socio-economic development plans, implementation and development of policies that relate to economic and social management in province. Also concerned with internal and external investments in the province and business registration.

Department of Finance (DOF)—responsible for all aspects of state finance, state budget, tax, fees, state funds, financial investment, accounting, independent audit, pricing and financial operations in the province.

Department of Transportation (DOT)—responsible for all aspects of transportation, including roads, waterways, other transportation and safety.

Department of Agriculture and Rural Development- responsible for all aspects of agriculture development including aquaculture, forest, and rural development.

Department of Natural Resources and Environment (DONRE)—responsible for land and water resources, mineral resources, geological issues, environment, meteorology, surveying and mapping, land use planning.

Department of Education and Training (DOET)—responsible for education and training, including objectives, program content of education and training; standards of teachers and educational administrators; school equipment and furniture; regulations on examinations and award of diplomas and certificates; and ensures the quality of education and training.

Provincial Inspector—responsible for inspection of provincial interventions, complaints denunciation, accusation, corruption prevention and identification.

PPC Office—responsible for coordinating and supporting PPC in performing its duties.

Appendix B: Institutional arrangement in Urban environment, climate change adaptation and flooding protection for Hoi An City

Table 1: Official Institutional Structure and Primary Responsibilities of Agencies Related to Urban Environment Management⁵⁶ in Hoi An City

Agencies	Technical and Administrative Agencies at Provincial Level					Technical and Administrative Agencies at City Level				Public Utilities and Service Agencies		
	DOC	DOT	DPI	DAR D	DOF	CPC	UMD	Donre	FPD	Hoi An Public Works Company	Quang Nam/Hoi An Water Supply Company	Hoi An PMU ⁵⁷
Main Activities												
Policy Development	X	X	X	X	X							X
Planning							X	X				
Approval	X	X		X								
Budget Allocation									X			
Providing Permission							X	x				
Overview of Implementation								X				

⁵⁶ The urban management and environment includes: water supply, wastewater, transport, urban environment, solid waste, parks, public lighting, , urban bus/car parking and station.

⁵⁷ Government Degree 12/2009/NĐ-CP dated 12/02/2009 on Construction management project and Procedures on Decentralization of Management for Construction Investment in Hoi An area, approved by HA City People Committee

Implementation										X	X	X
Supervising							X	x	X			
Reporting							X	X		X	X	X
O&M										X	X	X

Source: Organizational structure, position and working places of administrative agencies of Hoi An City, dated December 20-1-09 and open ended meetings with related agencies of the city.

Table 2: Official Institutional Arrangements and Primary Responsibilities of Agencies Related to Climate Change Adaptation in Hoi An City

Agencies	DONRE at Province	Donre of City	Planning and Finance Division of City	Others Division(s) and CPC
Main Activities				
Policy Development	X			
Planning	X	No official mandate	No official mandate	No official mandate
Approval		No official mandate	No official mandate	No official mandate
Implementation		No official mandate	No official mandate	No official mandate
Monitor		No official mandate	No official mandate	No official mandate
Reporting		No official mandate	No official mandate	No official mandate
O&M		No official mandate	No official mandate	No official mandate

Source: Organizational Structure, Position and Working Places of Administrative Agencies of Hoi An City, dated December 20/1/09 and open ended meetings with related agencies of the city.

Table 3: Official Institutional Arrangements and Primary Responsibilities of Agencies Related to City Flood Protection Activities in Hoi An city

State Management Administrative and Technical Agencies				Service Providing Agencies		
Agencies	Other Divisions and CPC	Economic Division	Planning and Finance Division	Commune/Wards	PMU	
Main activities						
Planning	X	X	X			
Budgeting and Approval	X	X	X			
Implementation					X	
Monitoring		X				
Reporting		X				
O&M				X		

Appendix C: Institutional arrangement in Urban environment, climate change adaptation and flooding protection for Hoi An City

Table 1: Official Institutional Arrangement and Main Responsibilities of Agencies Related to Urban Environment in Dong Hoi City

	State Administrative and Technical Agencies at Provincial Level			State Administrative and Technical Agencies at City Level				Public Utilities and Service Agencies				
Agencies	DARK	DOC	DOF	CPC	UMD	Donre	FPD	Quang Binh Water Supply Company	Quang Binh Urenco	City PMU	Green Planting Center	Sea Beach Management Board
Main Activities												
Policies Development				X	X					X		
Planning					X	X						
Approval				X								
Budget Allocation							X					
Providing Permission					X	x						
Overview of Implementation					X	X						
Implementation								X	X	X	x	X
Supervising/Monitoring					X	x	x				X	X

Reporting					X	X		X	X	X	X	X
O&M								X	X	X	X	X

Table 2: Official Institutional Arrangements and Main Responsibilities of Agencies Related to Climate Change Adaptation in Dong Hoi City

Agencies	Donre	Planning and Finance Division	Others Division and CPC
Main activities			
Planning	No official mandate	No official mandate	No official mandate
Approval	No official mandate	No official mandate	No official mandate
Implementation	No official mandate	No official mandate	No official mandate
Monitoring	No official mandate	No official mandate	No official mandate
Reporting	No official mandate	No official mandate	No official mandate
O&M	No official mandate		

Table 3: Official Institutional Arrangement and Primary Responsibilities of Agencies Related to City Flood Protection Activities in Dong Hoi city

State management Administrative and Technical Agencies				Public Service Utilities and Service Agencies		
Agencies	Other divisions and CPC	Economic Division	Planning and Finance Division	City PMU	PMU of DARD	
Primary Activities						
Planning	X	X	X			
Budgeting and Approval	X	X	X			
Implementation ⁵⁸				X	X	
Monitoring		X				
Reporting		X				
O&M				X	X	

⁵⁸ Depends who is the Investment Owner (City or Province)

Appendix E – Cost Tables

A. Detailed Cost Estimates

Table 3: Dong Hoi Urban Environment and Climate Change Adaptation
(\$'000s)

Item	Unit	Quantities								Total	Unit Cost		Base Cost (\$ '000)						Total
		2015	2016	2017	2018	2019	2020	(\$ '000)	2015		2016	2017	2018	2019	2020				
I. Investment Costs																			
A. Dong Hoi Main City Wastewater Collection																			
1. Civil Works																			
a. Tertiary sewers in central city wards	lump sum	0.25	0.25	0.25	0.25	-	-	1	3,028.4	757	757	757	757	-	-	-	3,028		
b. Sewer extensions, pump station & CSO	lump sum	-	0.33	0.34	0.33	-	-	1	1,509.6	-	498	513	498	-	-	-	1,510		
Subtotal										757	1,255	1,270	1,255	-	-	-	4,538		
2. Pump Stations and CSO Alarms, CCTV	lump sum	-	-	0.5	0.5	-	-	1	330.0	-	-	165	165	-	-	-	330		
Subtotal										757	1,255	1,435	1,420	-	-	-	4,868		
B. Bao Ninh Urban Development																			
1. Civil Works																			
a. North-South Road No. 2																			
Road bed	lump sum	-	0.33	0.34	0.33	-	-	1	5,072.7	-	1,674	1,725	1,674	-	-	-	5,073		
Road light system	lump sum	-	0.33	0.34	0.33	-	-	1	71.7	-	24	24	24	-	-	-	72		
Electricity system	lump sum	-	0.33	0.34	0.33	-	-	1	937.6	-	309	319	309	-	-	-	938		
Communication system	lump sum	-	0.33	0.34	0.33	-	-	1	230.0	-	76	78	76	-	-	-	230		
Subtotal										-	2,083	2,146	2,083	-	-	-	6,312		
b. East-West Road No. 1																			
Road bed	lump sum	-	0.33	0.34	0.33	-	-	1	733.2	-	242	249	242	-	-	-	733		
Road light system	lump sum	-	0.33	0.34	0.33	-	-	1	13.4	-	4	5	4	-	-	-	13		
Electricity system	lump sum	-	0.33	0.34	0.33	-	-	1	257.2	-	85	87	85	-	-	-	257		
Communication system	lump sum	-	0.33	0.34	0.33	-	-	1	27.4	-	9	9	9	-	-	-	27		
Subtotal										-	340	351	340	-	-	-	1,031		
c. East-West Road No. 2																			
Road bed	lump sum	-	0.33	0.34	0.33	-	-	1	636.2	-	210	216	210	-	-	-	636		
Road light system	lump sum	-	0.33	0.34	0.33	-	-	1	11.1	-	4	4	4	-	-	-	11		
Electricity system	lump sum	-	0.33	0.34	0.33	-	-	1	242.4	-	80	82	80	-	-	-	242		
Communication system	lump sum	-	0.33	0.34	0.33	-	-	1	24.0	-	8	8	8	-	-	-	24		
Subtotal										-	302	311	302	-	-	-	914		
d. East-West Road No. 3																			
Road bed	lump sum	-	0.33	0.34	0.33	-	-	1	840.2	-	277	286	277	-	-	-	840		
Road light system	lump sum	-	0.33	0.34	0.33	-	-	1	15.0	-	5	5	5	-	-	-	15		
Electricity system	lump sum	-	0.33	0.34	0.33	-	-	1	287.6	-	95	98	95	-	-	-	288		
Communication system	lump sum	-	0.33	0.34	0.33	-	-	1	32.2	-	11	11	11	-	-	-	32		
Subtotal										-	388	400	388	-	-	-	1,175		
e. East-West Road No. 4																			
Road bed	lump sum	-	0.33	0.34	0.33	-	-	1	2,470.2	-	815	840	815	-	-	-	2,470		
Road light system	lump sum	-	0.33	0.34	0.33	-	-	1	33.1	-	11	11	11	-	-	-	33		
Electricity system	lump sum	-	0.33	0.34	0.33	-	-	1	754.3	-	249	256	249	-	-	-	754		
Communication system	lump sum	-	0.33	0.34	0.33	-	-	1	103.8	-	34	35	34	-	-	-	104		
Subtotal										-	1,109	1,143	1,109	-	-	-	3,361		
f. Bao Ninh Stormwater																			
Retention lakes	lump sum	-	0.25	0.25	0.25	0.25	-	1	500.0	-	125	125	125	125	-	-	500		
Stormwater drainage (N-S Road 2)	lump sum	-	0.25	0.25	0.25	0.25	-	1	2,307.7	-	577	577	577	577	-	-	2,308		
Stormwater drainage (E-W Road 1)	lump sum	-	0.25	0.25	0.25	0.25	-	1	216.3	-	54	54	54	54	-	-	216		
Stormwater drainage (E-W Road 2)	lump sum	-	0.25	0.25	0.25	0.25	-	1	182.7	-	46	46	46	46	-	-	183		
Stormwater drainage (E-W Road 3)	lump sum	-	0.25	0.25	0.25	0.25	-	1	264.4	-	66	66	66	66	-	-	264		
Stormwater drainage (E_W Road 4)	lump sum	-	0.25	0.25	0.25	0.25	-	1	713.3	-	178	178	178	178	-	-	713		
Subtotal										-	1,046	1,046	1,046	1,046	-	-	4,184		
g. Wastewater																			
Main wastewater system	lump sum	-	-	0.33	0.34	0.33	-	1	3,500.0	-	-	1,155	1,190	1,155	-	-	3,500		
Wastewater system along Nhat Le River & latitudinal roads 2 & 3	lump sum	-	-	0.33	0.34	0.33	-	1	1,500.0	-	-	495	510	495	-	-	1,500		
Household connection, tertiary	lump sum	-	-	0.33	0.34	0.33	-	1	1,000.0	-	-	330	340	330	-	-	1,000		
Subtotal										-	-	1,980	2,040	1,980	-	-	6,000		
Subtotal										-	5,268	7,376	7,308	3,026	-	-	22,978		

Table 3: Dong Hoi Urban Environment and Climate Change Adaptation (Continued)

Item	Unit	Quantities								Unit Cost (\$ '000)	Base Cost (\$ '000)							
		2015	2016	2017	2018	2019	2020	Total	2015		2016	2017	2018	2019	2020	Total		
C. Bao Ninh Hydrodynamic Study and Dune Restoration																		
1. Dong Hoi Hydrodynamic Study																		
a. Measurement Campaign	lump sum										120	-	-	-	-	-	120	
b. Consultants																		
International Consultants	p-months	3	3	-	-	-	-	6	25.0	75	75	-	-	-	-	-	150	
National Consultants	p-months	12	12	-	-	-	-	24	2.5	30	30	-	-	-	-	-	60	
Subtotal										105	105	-	-	-	-	-	210	
c. Consultant Support	lump sum	1	1	-	-	-	-	2	16.5	17	17	-	-	-	-	-	33	
Subtotal										242	122	-	-	-	-	-	363	
2. Bao Ninh Dune Restoration																		
a. Topographic and Bathymetric Maps																		
Topographic maps	set	1	-	-	-	-	-	1	50.0	50	-	-	-	-	-	-	50	
Bathymetric maps	set	1	-	-	-	-	-	1	45.0	45	-	-	-	-	-	-	45	
Subtotal										95	-	-	-	-	-	-	95	
b. Sand fill and replanting																		
Sand fill	lump sum	1	-	-	-	-	-	1	460.0	460	-	-	-	-	-	-	460	
Replanting	lump sum	1	-	-	-	-	-	1	12.5	13	-	-	-	-	-	-	13	
Replanting	lump sum	-	12	10	10	10	10	52	1.0	-	12	10	10	10	10	52	52	
Subtotal										473	12	10	10	10	10	525	525	
c. Training materials	set	1	-	-	-	-	-	1	15.0	15	-	-	-	-	-	-	15	
d. Consultants																		
International consultants	p-months	1	0.5	0.5	0.5	0.5	0.5	3.5	25.0	25	13	13	13	13	13	88	88	
National consultants	p-months	4	3	3	3	2	2	17	2.5	10	8	8	8	5	5	43	43	
Subtotal										35	20	20	20	18	18	130	130	
e. Consultant support	lump sum									7	2	2	2	1	1	15	15	
Subtotal										625	34	32	32	29	29	779	779	
Subtotal										866	155	32	32	29	29	1,142	1,142	
D. Land Acquisition and Resettlement	lump sum	0.5	0.5	-	-	-	-	1	1,670.8	835	835	-	-	-	-	-	1,671	
E. Environmental Management																		
1. Monitoring																		
Water and air quality sampling	samples	-	20	20	20	20	20	100		-	1	1	1	1	1	3	3	
Water quality analysis	samples	-	10	10	10	10	10	50	0.2	-	2	2	2	2	2	10	10	
Air quality analysis	samples	-	10	10	10	10	10	50	0.2	-	2	2	2	2	2	12	12	
Subtotal										-	5	5	5	5	5	24	24	
F. Management & supervision costs																		
1. Engineering and management overheads /a																		
Main city wastewater civil works	lump sum									19	31	32	31	-	-	113	113	
Main city wastewater pump stations	lump sum									-	-	4	4	-	-	8	8	
Bao Ninh	lump sum									-	132	184	183	76	-	574	574	
Subtotal										19	163	220	218	76	-	696	696	
2. Construction supervision /b																		
Main city wastewater civil works	lump sum									19	31	32	31	-	-	113	113	
Main city wastewater pump stations	lump sum									-	-	4	4	-	-	8	8	
Bao Ninh	lump sum									-	132	184	183	76	-	574	574	
Subtotal										19	163	220	218	76	-	696	696	
Subtotal										38	326	441	436	151	-	1,392	1,392	
Total										2,497	7,845	9,288	9,201	3,211	34	32,075	32,075	

\a 2.5% of total physical works

\b 2.5% of total physical works

Table 4: Hoi An Urban Environment and Climate Change Adaptation
(\$000s)

Item	Unit	Quantities							Unit Cost (\$ '000)	Base Cost (\$ '000)						
		2015	2016	2017	2018	2019	2020	Total		2015	2016	2017	2018	2019	2020	Total
I. Investment Costs																
A. Lai Nghi Upgrading																
1. Wastewater collection and pumping																
Wastew ater collection pipelines	ls	-	0.5	0.5	-	-	-	1	69.0	-	35	35	-	-	-	69
Wastew ater pumping station	ls	-	0.5	0.5	-	-	-	1	36.2	-	18	18	-	-	-	36
Subtotal										-	53	53	-	-	-	105
2. Lai Nghi Upgrading and raw water transmission pipeline																
a. Pumping Station and Intake																
Embankment and sidewalk	lump sum	-	-	0.5	0.5	-	-	1	1,650.6	-	-	825	825	-	-	1,651
Crossing drains	lump sum	-	-	0.5	0.5	-	-	1	134.6	-	-	67	67	-	-	135
Raw w ater pumping station	lump sum	-	0.5	0.5	-	-	-	1	203.4	-	102	102	-	-	-	203
Horizontal pumps	no.	-	-	-	1.5	1.5	-	3	57.7	-	-	-	87	87	-	173
Subtotal										-	102	994	979	87	-	2,162
3. Lai Nghi Dredging	000 m3	-	-	198	204	198	-	600	6.0	-	-	1,188	1,224	1,188	-	3,600
Subtotal										-	154	2,235	2,203	1,275	-	5,867
B. Non-Revenue Water & Management Information System																
1. Non-revenue Water																
a. Equipment																
NRW equipment	set	-	1	-	-	-	-	1	25.7	-	26	-	-	-	-	26
b. Consultants																
International	p-months	-	3	3	1	1	-	8	25.0	-	75	75	25	25	-	200
National	p-months	-	6	6	2	2	-	16	2.5	-	15	15	5	5	-	40
Subtotal										-	90	90	30	30	-	240
Subtotal										-	116	90	30	30	-	266
2. Management Information System																
a. Equipment																
GIS Equipment	set	-	1	-	-	-	-	1	50.0	-	50	-	-	-	-	50
SCADA	set	-	-	1	-	-	-	1	150.0	-	-	150	-	-	-	150
Subtotal										-	50	150	-	-	-	200
b. Consultants																
International	p-months	-	2	3	2	1	-	8	25.0	-	50	75	50	25	-	200
National	p-months	-	12	6	2	2	-	22	2.5	-	30	15	5	5	-	55
Subtotal										-	80	90	55	30	-	255
Subtotal										-	130	240	55	30	-	455
Subtotal										-	246	330	85	60	-	721
C. Flood Management																
1. Phap Bao Lake																
Stop-log gate	lump sum	-	0.33	0.34	0.33	-	-	1	44.7	-	15	15	15	-	-	45
Park	lump sum	-	0.33	0.34	0.33	-	-	1	1,201.9	-	397	409	397	-	-	1,202
Dredging	lump sum	-	1	-	-	-	-	1	1,394.2	-	1,394	-	-	-	-	1,394
Subtotal										-	1,806	424	411	-	-	2,641
2. Non-structural Urban Flood Management																
a. Equipment																
Computer hardw are	sets	-	-	12	12	-	-	24	25.0	-	-	300	300	-	-	600
Computer softw are	sets	-	-	4	-	-	-	4	25.0	-	-	100	-	-	-	100
Subtotal										-	-	400	300	-	-	700
b. Consultants																
International Consultants	p-months	-	25	24	14	-	-	63	25.0	-	625	600	350	-	-	1,575
National Consultants	p-months	-	56	46	28	-	-	130	2.5	-	140	115	70	-	-	325
Subcontracts	no.	-	3	4	3	-	-	10	50.0	-	150	200	150	-	-	500
Subtotal										-	915	915	570	-	-	2,400
c. Training/capacity building	lump sum									-	-	200	200	-	-	400
d. Overheads	lump sum									-	-	-	-	155	155	310
Subtotal										-	915	1,515	1,070	155	155	3,810
Subtotal										-	2,721	1,939	1,481	155	155	6,451

Table 4: Hoi An Urban Environment and Climate Change Adaptation

Item	Unit	Quantities							Unit Cost (\$ '000)	Base Cost (\$ '000)						
		2015	2016	2017	2018	2019	2020	Total		2015	2016	2017	2018	2019	2020	Total
D. Urban Area Development																
1. Urban Infrastructure																
a. Access road to Cua Dai Bridge																
Road	lump sum	-	0.5	0.5	-	-	-	1	11,351.6	-	5,676	5,676	-	-	-	11,352
Bridges	lump sum	-	0.5	0.5	-	-	-	1	11,651.6	-	5,826	5,826	-	-	-	11,652
Storm w ater system	lump sum	-	0.5	0.5	-	-	-	1	505.2	-	253	253	-	-	-	505
Subtotal										-	11,754	11,754	-	-	-	23,508
2. Infrastructure for UDAs																
a. Infrastructure																
Co Co UDA	lump sum	-	-	0.1	0.3	0.3	0.3	1	21,197.1	-	-	2,120	6,359	6,359	6,359	21,197
Subtotal										-	11,754	13,874	6,359	6,359	6,359	44,705
E. Provincial Road 608	lump sum	-	-	0.5	0.5	-	-	1	9,373.5	-	-	4,687	4,687	-	-	9,373
F. Land Acquisition and Resettlement																
1. Lai Nghi	lump sum	0.5	0.5	-	-	-	-	1	293.4	147	147	-	-	-	-	293
2. Co Co UDA	lump sum	0.5	0.5	-	-	-	-	1	6,098.2	3,049	3,049	-	-	-	-	6,098
3. Phap Bao Lake Improvement	lump sum	0.5	0.5	-	-	-	-	1	128.7	64	64	-	-	-	-	129
Subtotal										3,260	3,260	-	-	-	-	6,520
G. Environmental Management																
1. Monitoring																
Water and air quality sampling	samples	-	20	20	20	20	20	100		-	1	1	1	1	1	3
Water quality analysis	samples	-	10	10	10	10	10	50	0.2	-	2	2	2	2	2	10
Air quality analysis	samples	-	10	10	10	10	10	50	0.2	-	2	2	2	2	2	12
Subtotal										-	5	5	5	5	5	24
H. Engineering and Supervision																
1. Engineering and Management Overheads /a																
Wastew ater collection and pumping	lump sum									-	1	1	-	-	-	3
Lai Nghi upgrading	lump sum									-	3	25	24	2	-	54
Phap Bao Lake	lump sum									-	45	11	10	-	-	66
Urban Area Development	lump sum									-	294	347	159	159	159	1,118
Provincial Road 608	lump sum									-	-	117	117	-	-	234
Subtotal										-	343	501	311	161	159	1,475
2. Construction supervision /b																
Wastew ater collection and pumping	lump sum									-	1	1	-	-	-	1
Lai Nghi upgrading	lump sum									-	1	12	12	1	-	27
Phap Bao Lake	lump sum									-	23	5	5	-	-	33
Urban Area Development	lump sum									-	147	173	79	79	79	559
Provincial Road 608	lump sum									-	-	59	59	-	-	117
Subtotal										-	171	250	155	81	79	737
Subtotal										-	514	751	466	242	238	2,212
Total										3,260	18,654	23,820	15,287	8,095	6,757	75,874

ia Charged at 2.5% of investment cost

ib Charged at 1.25% of investment cost

Table 5: Project Management and Climate Change Support
(\$000s)

(\$000s)																
Item	Unit	Quantities							Unit Cost	Base Cost						
		2015	2016	2017	2018	2019	2020	Total		2015	2016	2017	2018	2019	2020	Total
I. Investment Costs																
A. Overall Project Management																
1. International Consultants																
Team Leader/Civil Engineer /a	p-months	6	8	4	4	2	4	28	25.0	150	200	100	100	50	100	700
Climate Change/Urban Planner	p-months	1	3	1	1	1	-	7	25.0	25	75	25	25	25	-	175
Financial Management	p-months	1	1	1	1	1	-	5	25.0	25	25	25	25	25	-	125
Environment Monitoring Specialist	p-months	1	1	1	1	1	1	6	25.0	25	25	25	25	25	25	150
Resettlement Specialist	p-months	1	1	1	1	1	1	6	25.0	25	25	25	25	25	25	150
Gender specialist	p-months	1	1	1	1	1	1	6	25.0	25	25	25	25	25	25	150
Subtotal										275	375	225	225	175	175	1,450
2. Communications																
Environmental awareness campaigns	ls									13	13	13	13	13	13	75
Subtotal										288	388	238	238	188	188	1,525
B. Project Management Unit: Dong Hoi																
1. National Consultants																
Deputy Team Leader	p-months	6	12	12	9	9	6	54	2.5	15	30	30	23	23	15	135
Climate Change/Urban Planner	p-months	1	3	1	1	1	-	7	2.5	3	8	3	3	3	-	18
Financial Management Specialist	p-months	2	6	4	2	2	2	18	2.5	5	15	10	5	5	5	45
Environmental Monitoring Specialist	p-months	3	3	3	3	2	1	15	2.5	8	8	8	8	5	3	38
Resettlement Specialist	p-months	6	9	9	9	9	-	42	2.5	15	23	23	23	23	-	105
Gender Training Specialist	p-months	2	1	1	1	1	-	6	2.5	5	3	3	3	3	-	15
Subtotal										50	85	75	63	60	23	355
2. Consultant Support																
Office operation	lump sum	10	10	10	10	10	10	60	2.5	25	25	25	25	25	25	150
Training	lump sum	1	-	-	-	-	-	1	100.0	100	-	-	-	-	-	100
Equipment (hardware & software)	lump sum	1	-	-	-	-	-	1	25.0	25	-	-	-	-	-	25
Subtotal										150	25	25	25	25	25	275
3. Revolving funds																
Dong Hoi Women's Association	ls	1	-	-	-	-	-	1	200.0	200	-	-	-	-	-	200
Subtotal										400	110	100	88	85	48	830
C. Project Management Unit: Hoi An																
1. National Consultants																
Deputy Team Leader	p-months	6	12	12	12	12	-	54	2.5	15	30	30	30	30	-	135
Contract Management Specialist	p-months	3	6	2	2	2	-	15	2.5	8	15	5	5	5	-	38
Climate Change/Urban Planner	p-months	1	3	1	1	1	-	7	2.5	3	8	3	3	3	-	18
Financial Management Specialist	p-months	2	6	6	2	2	-	18	2.5	5	15	15	5	5	-	45
Environment Monitoring Specialist	p-months	3	3	3	3	3	-	15	2.5	8	8	8	8	8	-	38
Resettlement Specialist	p-months	6	3	3	3	3	-	18	2.5	15	8	8	8	8	-	45
Gender Training Specialist	p-months	2	1	1	1	1	-	6	2.5	5	3	3	3	3	-	15
Subtotal										58	85	70	60	60	-	333

Table 5: Project Management and Climate Change Support (Continued)

Item	Unit	Quantities							Unit Cost	Base Cost						
		2015	2016	2017	2018	2019	2020	Total		2015	2016	2017	2018	2019	2020	Total
2. Consultant Support																
Office operation	lump sum	12	12	12	12	12	-	60	5.0	60	60	60	60	60	-	300
Transportation	year	1	1	1	1	1	-	5	50.0	50	50	50	50	50	-	250
Training	lump sum	1	-	-	-	-	-	1	100.0	100	-	-	-	-	-	100
Equipment (hardware & software)	lump sum	1	-	-	-	-	-	1	25.0	25	-	-	-	-	-	25
Subtotal										235	110	110	110	110	-	675
3. Revolving funds																
Hoi An Women's Association	ls	1	-	-	-	-	-	1	200.0	200	-	-	-	-	-	200
Subtotal										493	195	180	170	170	-	1,208
D. Detailed Engineering and Preparation																
1. Dong Hoi																
Bao Ninh Detailed Planning	lump sum	1	-	-	-	-	-	1	250.0	250	-	-	-	-	-	250
Dong Hoi Detailed design	lump sum	1	-	-	-	-	-	1	500.0	500	-	-	-	-	-	500
Subtotal										750	-	-	-	-	-	750
2. Hoi An																
a. Co Co River UDA detailed planning	lump sum									250	-	-	-	-	-	250
b. Detailed design and bid documents	lump sum									750	-	-	-	-	-	750
Subtotal										1,000	-	-	-	-	-	1,000
Subtotal										1,750	-	-	-	-	-	1,750
Total Investment Costs										2,930	693	518	495	443	235	5,313
II. Recurrent Costs																
Total										2,930	693	518	495	443	235	5,313

1a Responsible also for Hoi An Water Supply capacity building.

B. Overall Project Costs and Financing

1. Detailed Cost Estimates by Expenditure Category

Item	(VND Million)			(\$ Million)			% of Total Base Cost
	Foreign Exchange	Local Currency	Total	Foreign Exchange	Local Currency	Total	
A. Investment Costs							
1. Civil Works	560,325	1,314,697	1,875,022	26.94	63.21	90.15	80%
a. Civil Works (Loan)	559,234	1,304,879	1,864,112	26.89	62.73	89.62	79%
b. Civil Works (Grant)	1,091	9,819	10,910	0.05	0.47	0.52	0%
2. Equipment	30,947	7,480	38,427	1.49	0.36	1.85	2%
a. Equipment (Loan)	18,342	3,237	21,579	0.88	0.16	1.04	1%
b. Equipment (Grant)	12,605	4,243	16,848	0.61	0.20	0.81	1%
3. Consulting Services	91,380	88,022	179,402	4.39	4.23	8.63	8%
a. International Consultants	71,734	4,446	76,180	3.45	0.21	3.66	3%
b. National Consultants	213	61,355	61,568	0.01	2.95	2.96	3%
c. Consultant Support	19,433	22,221	41,654	0.93	1.07	2.00	2%
4. Capacity Building	832	7,488	8,320	0.04	0.36	0.40	0%
5. Survey, Design and Supervision	3,748	71,221	74,969	0.18	3.42	3.60	3%
6. Gender Mainstreaming	-	8,320	8,320	-	0.40	0.40	0%
7. Environmental Management	-	998	998	-	0.05	0.05	0%
8. Resettlement	-	170,374	170,374	-	8.19	8.19	7%
Subtotal (A)	687,232	1,668,601	1,668,601	33.04	80.22	113.26	100%
B. Contingencies							
1. Physical	65,807	159,998	225,805	3.16	7.69	10.86	10%
2. Price	170,271	399,173	569,444	1.25	2.93	4.18	4%
Subtotal (B)	236,077	559,171	795,249	4.4	10.6	15.0	13%
C. Financing Charges During Implementation							
1. Interest During Implementation	136,587	-	136,587	5.65	-	5.65	5%
2. Commitment Charges	12,517	-	12,517	0.49	-	0.49	0%
Subtotal (C)	149,104	-	149,104	6.14	-	6.14	5%
Total Project Cost (A+B+C)	1,072,414	2,227,772	2,612,954	43.59	90.84	134.43	119%

2. Detailed Cost Estimates by Financier

(\$ million)

Item	Asian Development Bank		UCCRTF		PPSSF		The Government		Total Cost
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	
A. Investment Costs									
1. Civil Works	77.44	85.9	0.52	0.6	-	-	12.18	13.5	90.15
1. Civil Works (Loan)	77.44	86.4	-	-	-	-	12.18	13.6	89.62
2. Civil Works (Grant)	-	-	0.52	100.0	-	-	-	-	0.52
2. Equipment	0.94	51.0	0.81	43.8	-	-	0.09	5.1	1.85
Equipment (Loan)	0.94	90.9	-	-	-	-	0.09	9.1	1.04
Equipment (Grant)	-	-	0.81	100.0	-	-	-	-	0.81
3. Consulting Services	3.50	40.5	3.22	37.3	1.75	20.3	0.16	1.9	8.63
International Consultants	1.85	50.5	1.81	49.5	-	-	-	-	3.66
National Consultants	0.71	24.2	0.43	14.4	1.75	59.1	0.07	2.3	2.96
Consultant Support	0.93	46.5	0.98	48.8	-	-	0.09	4.7	2.00
4. Capacity Building	-	-	0.40	100.0	-	-	-	-	0.40
5. Survey, Design and Supervision	-	-	-	-	-	-	3.60	100.0	3.60
6. Gender Mainstreaming	0.40	100.0	-	-	-	-	-	-	0.40
7. Environmental Management	-	-	-	-	-	-	0.05	100.0	0.05
8. Resettlement	-	-	-	-	-	-	8.19	100.0	8.19
Subtotal (A)	82.28	72.3	4.95	4.4	1.75	1.5	24.28	21.8	113.26
B. Contingencies	11.59	77.1	0.25	1.6	-	-	3.20	21.3	15.03
C. Financing Charges During Implementation									
1. Interest During Implementation	5.65	100.0	-	-	-	-	-	-	5.65
2. Commitment Charges	0.49	100.0	-	-	-	-	-	-	0.49
Subtotal (C)	6.14	100.0	-	-	-	-	-	-	6.14
Total Project Cost (A+B+C)	100.00	74.4	5.20	3.9	1.75	1.3	27.48	20.4	134.43
% Total Project Cost		74%		4%		1%		20%	100%

3. Detailed Cost Estimates by Outputs

Item	Total Cost	(\$ million)					
		Dong Hoi Urban Environment and Climate Change Adaptation		Hoi An Urban Environment and Climate Change Adaptation		Project Management and Climate Change Support	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs							
1. Civil Works	90.15	28.04	31.1	62.10	68.9	-	-
1. Civil Works (Loan)	89.62	27.52	30.7	62.10	69.3	-	-
2. Civil Works (Grant)	0.52	0.52	100.0	-	-	-	-
2. Equipment	1.85	0.44	23.8	1.41	76.2	-	-
Equipment (Loan)	1.04	0.33	31.8	0.71	68.2	-	-
Equipment (Grant)	0.81	0.11	13.6	0.70	86.4	-	-
3. Consulting Services	8.63	0.51	5.9	3.21	37.2	4.91	57.0
International Consultants	3.66	0.24	6.5	1.98	53.9	1.45	39.6
National Consultants	2.96	0.10	3.5	0.42	14.2	2.44	82.3
Consultant Support	2.00	0.17	8.4	0.81	40.4	1.03	51.2
4. Capacity Building	0.40	-	-	0.40	100.0	-	-
5. Survey, Design and Supervision	3.60	1.39	38.6	2.21	61.4	-	-
6. Gender Mainstreaming	0.40	-	-	-	-	0.40	100.0
7. Environmental Management	0.05	0.02	50.0	0.02	50.0	-	-
8. Resettlement	8.19	1.67	20.4	6.52	79.6	-	-
Subtotal (A)	113.26	32.08	28.3	75.87	67.0	5.31	4.7
B. Contingencies							
1. Physical	10.86	3.15	29.0	7.40	68.1	0.31	2.8
2. Price	4.18	1.15	27.5	2.92	70.0	0.11	2.5
Subtotal (B)	15.03	4.30	28.6	10.32	68.7	0.42	2.8
C. Financing Charges During Implementation							
1. Interest During Implementation	5.65	1.76	31.1	3.61	63.9	0.28	5.0
2. Commitment Charges	0.49	0.14	27.8	0.34	68.9	0.02	3.3
Subtotal (C)	6.14	1.89	30.8	3.94	64.3	0.30	4.9
Total Project Cost (A+B+C)	134.43	38.26	28.5	90.14	67.1	6.03	4.5

4. Detailed Cost Estimates by Year

(\$ million)

Item	Total Cost	2015	2016	2017	2018	2019	2020
A. Investment Costs							
1. Civil Works	90.15	1.23	20.09	29.72	22.15	10.58	6.37
1. Civil Works (Loan)	89.62	0.76	20.08	29.71	22.14	10.57	6.36
2. Civil Works (Grant)	0.52	0.47	0.01	0.01	0.01	0.01	0.01
2. Equipment	1.85	0.11	0.23	0.87	0.55	0.09	-
Equipment (Loan)	1.04	-	0.23	0.47	0.25	0.09	-
Equipment (Grant)	0.81	0.11	-	0.40	0.30	-	-
3. Consulting Services	8.63	2.81	1.92	1.63	1.17	0.68	0.41
International Consultants	3.66	0.38	1.21	0.99	0.66	0.24	0.19
National Consultants	2.96	1.90	0.39	0.30	0.21	0.14	0.03
Consultant Support	2.00	0.54	0.32	0.35	0.30	0.30	0.19
4. Capacity Building	0.40	-	-	0.20	0.20	-	-
5. Survey, Design and Supervision	3.60	0.04	0.84	1.19	0.90	0.39	0.24
6. Gender Mainstreaming	0.40	0.40	-	-	-	-	-
7. Environmental Management	0.05	-	0.01	0.01	0.01	0.01	0.01
8. Resettlement	8.19	4.10	4.10	-	-	-	-
Subtotal (A)	113.26	8.69	27.19	33.63	24.98	11.75	7.03
B. Contingencies							
1. Physical	10.86	0.61	2.66	3.28	2.44	1.16	0.69
2. Price	4.18	0.03	0.49	1.10	1.20	0.77	0.58
Subtotal (B)	15.03	0.64	3.15	4.39	3.64	1.94	1.27
C. Financing Charges During Implementation							
1. Interest During Implementation	5.65	0.01	0.15	0.63	1.24	1.68	1.93
2. Commitment Charges	0.49	0.15	0.14	0.10	0.06	0.03	0.01
Subtotal (C)	6.14	0.16	0.29	0.74	1.30	1.71	1.94
Total Project Cost (A+B+C)	134.43	9.49	30.64	38.75	29.93	15.40	10.23
% Total Project Cost	100%	7%	23%	29%	22%	11%	8%