

Rockefeller
Foundation

**Asia Cities Climate
Change Resilience
Network Initiative**

Vietnam Country
Report

HAI PHONG

DONG HOI

HUE

DA NANG

QUI NHON

HO CHI MINH CITY

PHAN THIET

CAN THO

NANG

Rockefeller Foundation

**Asia Cities Climate
Change Resilience
Network Initiative**

Vietnam Country Report
Final

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Executive Summary

Introduction

The Rockefeller Foundation is investigating a number of countries in East Asia to identify cities vulnerable to climate change impacts and potentially suitable for their Asian Cities Climate Change Resilience Network (ACCCRN) Initiative. Ove Arup & Partners Hong Kong Ltd was engaged to assist the Rockefeller Foundation to investigate several potential cities in Vietnam that could be recommended as suitable candidates for the Initiative.

Vietnam is a centrally controlled communist country situated on the easternmost margin of the Indochina Peninsula. The country encompasses a land area of around 320,000km² and in 2008 contained more than 85 million people. The majority of the population is concentrated into the northern and southern delta regions and the eastern coastal margin. The coastline borders the South China Sea and is frequently hit by cyclones and typhoons. Low lying land forms large areas of the coastal margins of Vietnam making the population vulnerable to climate change impacts including sea level rise and increasing frequency and intensity of typhoons and tropical storms.

Vietnamese policy is actively pursuing economic growth to raise the living standards of the people, which is yielding positive benefits. However, with increasing wealth also comes inequality of income which poses a challenge for a country that has historically relied on the State to provide livelihood security for the people. Economic growth is also placing a burden on the capacity of existing urban infrastructure as migrants move into the cities seeking employment opportunities. The result is that it is the poor, who are often the most vulnerable as they do not have the resources or means to diversify or cope, are more exposed to the effects of climate change as they migrate to marginal poor quality land in urban areas.

National Level Governance for Climate Change

Climate change policy in Vietnam is undergoing a period of transition driven by the development of the National Target Plan, currently in draft form and awaiting final approval, which is expected by the end of 2008. Once approved, the NTP will form the national strategy for climate change and will be driven by a steering committee chaired by the Prime Minister. Scenario predictions and impact assessments are scheduled for completion in 2009, while action plans to address these impacts will be undertaken at both national and provincial levels by 2015.

Approach and Results

Starting with several potential cities, the investigation undertook a high level screening exercise that relied on discussions with stakeholders and literature reviews. The objective was to shortlist three potential cities that could be suitable for more detailed investigation. Based on feedback regarding indicators pertaining to the level of impact, exposure, vulnerability, governance, and potential interest, the cities of Hue, Quy Nhon and Ca Tho were selected for more detailed investigations. Hue is regarded as the cultural capital and is located in the central coastal margin where flooding and severe storms provides the main climatic impacts. Quy Nhon is a poorer east coast city again impacted by flooding and severe storms, while Can Tho lies in the south on the Mekong delta which forms the bread basket of Vietnam. Again this area is impacted by flooding, severe storms and will be very sensitive to small sea level rises due to vast areas of low lying land.

Within each of these cities, the investigation relied predominantly on stakeholder engagement across government, non government and academic institutions as well as a review of literature.

Feedback from the engagement indicated that Hue had the highest potential exposure from climate change followed by Can Tho and then Quy Nhon. All cities contained vulnerable communities within them which often comprised poorer households living along river banks, within the floodplains as well as on exposed coastal margins.

The level of awareness across all three cities is relatively similar and typically decreases down the government structure from the national to provincial to city levels. All cities are very aware of the short term impacts that they are already facing and they appear to have a reasonably good capacity to cope with disaster management as a result of continual flooding and related problems. However, awareness and understanding of the longer term impacts of climate change is not well understood.

Stakeholder feedback and literature suggests that governance is highest in Quy Nhon with relatively equal weighting between Hue and Can Tho. Interest is also highest in Quy Nhon due to a current lack of climate change related work in the city. They also seem to be eager to engage and secure additional investment in this area.

Technical capabilities from the perspective of government departments in all three cities are relatively equal and reflect a lack of certainty as to what future impacts could comprise and how this could be incorporated into long term planning. Finally both Can Tho and Hue contain highly regarded academic institutions both within Vietnam and internationally, while the university in Quy Nhon was less well known.

Recommendations

Based on the results of this investigation, Can Tho is recommended as the preferred city for further engagement due to its exposure, vulnerability, enabling environment and academic capacity. Quy Nhon is also recommended even though it has a relatively lower level of exposure and weaker academic institution. Its strengths lie in its enabling environment, willingness and interest to be involved in any type of Initiative. Hue is not recommended due to its governance and the level of activity already underway in the city.

Next steps

The next steps for Vietnam in the short term are clear and in turn will clarify the longer term course of action. The Rockefeller Foundation should undertake a visit to the city(s) of interest once a degree of certainty is known that further action will be undertaken. This will help build the foundations for good relationships that will be required to establish the networks required for the Initiative.

Vulnerability mapping and impact assessment is required in more detail which in turn will provide clarity to potential programs that yield the highest benefit. Disaster preparation and risk management are very developed in Vietnam due to the frequency of impacts that occur. Government and non government stakeholders working in these areas are well versed as to where the vulnerable communities lie and the households affected within them. Tapping into the existing knowledge centers is likely to be the most efficient way forward in mapping vulnerability.

Climate change impact assessments on the vulnerable are required as this information is currently lacking in the cities. By combining vulnerability with the impacts facing them, it will be possible to identify both potential programs that yield the greatest benefits and the potential partners to carry the program forward. Until these partners have been identified, recommendations have been included for a local in country partner to assist the process.

Numerous opportunities exist for a program and include awareness raising and capacity building, provision of technical expertise, skill transfer and intervention. Scope exists to combine raising awareness, capacity building, technical expertise and skill transfer to yield complementary and more beneficial outcomes. It would also provide opportunity for replication in other cities in Vietnam, and also across other countries in the region.

Conclusions

Vietnam is a developing country with a vulnerable population facing the realities of climate change. The government has recognised this and is implementing a government policy in response to these threats. Formulation of a national level policy is well advanced and plans are in place for impact assessment and development of actions plans at the national and provincial level. The entire process is underpinned by significant political will, a key factor in a centrally planned political system.

While there is still considerable uncertainty at this stage as to what a program may comprise, there is a clear path to be followed in the short term which in turn will provide the clarity required for the longer term. Based on the investigation undertaken in Phase I, there was no key reason identified to obstruct the many significant opportunities that exist for a successful program in Vietnam.

Contents

	Page
Executive Summary	
1 Introduction	1
1.1 Background	1
1.2 Purpose of this Report	2
1.3 Use of This Report	2
1.4 Acknowledgement	2
2 Country Overview	3
2.1 Population, culture, governance and political structures	3
2.2 Climate Change	11
2.3 Climate Change policy, initiatives and institutions	12
2.4 Trends and dynamic factors, including urbanization rates and urban policy	18
3 City Identification Methodology	20
3.1 Starting point	20
3.2 'Ground Truthing'	21
3.3 Shortlist	22
3.4 Iteration (Final Phase I list)	26
4 Method of Engagement	27
4.1 Overview – What, Who and How	27
4.2 Key challenges and blockages	28
4.3 What we would have done differently	28
5 City Overview – Hue City, Thua Thien Province	30
5.1 Introduction	30
5.2 Social – Economic Characteristics	30
5.3 Environmental Characteristics	31
5.4 Climate Risk Overview	33
5.5 Vulnerability Overview	33
5.6 Governance, Disaster Management and Adaptation	35
5.7 Stakeholder Analysis and Mapping	37
5.8 Policy and Initiatives	40
6 City Overview – Can Tho city	43
6.1 Introduction	43
6.2 Social – Economic Characteristics	43
6.3 Environmental Characteristics	45
6.4 Climate Risk Overview	48
6.5 Vulnerability Overview	50
6.6 Stakeholder Analysis and Mapping	52

6.7	Policy and Initiatives	56
7	City Overview – Quy Nhon City, Binh Dinh Province	60
7.1	Introduction	60
7.2	Social – Economic Characteristics	60
7.3	Environmental Characteristics	62
7.4	Climate Risk Overview	63
7.5	Vulnerability Overview	63
7.6	Disaster Risk Management and Adaptation	65
7.7	Stakeholder Analysis and Mapping	65
7.8	Policy and Initiatives	69
8	Phase II City Recommendations	72
8.1	Recommended Cities	72
8.2	Potential partners	73
8.3	Key gaps that need to be addressed	74
8.4	Possible projects	75
9	Conclusions	77
9.1	Cross-cutting themes	77
9.2	Suggested approach	77

Tables

Table 1	Recent or Current Climate Change Related Projects in Vietnam	13
Table 2	Donor, Academic and NGO stakeholders consulted	21
Table 3	Stakeholder Feedback Summary	22
Table 4	City PCI Ranking	25
Table 5	NGO Presence by Province, 2007	25
Table 6	Recommended Candidate Cities	26
Table 7	Excluded Cities	26
Table 8	Thua Thien Hue Province general Socio Economic Indicators (2001 - 2005)	31
Table 9	Vietnamese Flood Level Alarms	33
Table 10	Disaster Management Approach if PCFSC	36
Table 11	Disaster Management Organisations and Institutions	37
Table 12	Stakeholders Consulted - Hue	37
Table 13	Stakeholder Analysis Results - Hue	38
Table 14	Can Tho Socio Economic Indicators (2004 - 2007)	44
Table 15	Stakeholders Consulted – Can Tho	53
Table 16	Stakeholder Analysis Results – Can Tho	54
Table 17	Projects and programs related to Climate Change and Environment in Can Tho	58
Table 18	General Socio Economic Indicators, Quy Nhon	61
Table 19	Stakeholder consulted - Quy Nhon	66
Table 20	Stakeholder Analysis Results – Quy Nhon	67
Table 21	Initiatives in Quy Nhon	70
Table 22	Summary Results Table, Can Tho, Hue and Quy Nhon	72

Figures

Figure 1	Coastal Areas of Vietnam.....	3
Figure 2	Distribution of Households	5
Figure 3	Distribution of Poor in Vietnam.....	5
Figure 4	Population Density in Low Lying Coastal Areas Vulnerable to Sea Level Rise.....	6
Figure 5	National Government Structure of Vietnam	7
Figure 6	Mean Annual Temperature (1950 - 2000) (www.worldclim.org NOAA GHCN V2).....	8
Figure 7	Coldest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2)	9
Figure 8	Hottest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2)	9
Figure 9	Precipitation of Driest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2)	10
Figure 10	Precipitation of Wettest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2) ..	10
Figure 11	Hue City.....	30
Figure 12	Annual Average Rainfall in Hue City, Hue Monitoring Station (1928 - 2001)	32
Figure 13	Average Annual Temp, Hue City (1928 - 2001).....	32
Figure 14	Can Tho City	43
Figure 15	Average Annual Rainfall.....	45
Figure 16	Average temperature in Can Tho city (1978 to 2005).....	46
Figure 17	Mean highest Water Level at Hao River (cm)	47
Figure 18	Saline Intrusion in Can Tho, Dry Season 2004	50
Figure 19	Can Tho Districts.....	51
Figure 20	Quy Nhon	60
Figure 21	Rainfall in Quy Nhon (1976 to 2004).....	62
Figure 22	Mean annual air temperature Quy Nhon, Degrees Celsius (1976 to 2004).....	63

Photographs

Photograph 1	Vulnerable Communities Huang River	34
Photograph 2	Vulnerable Communities Huang River.....	34
Photograph 3	Rice farms and communes along Huong River	35
Photograph 4	Resettled communities from Hai Lagoon	35
Photograph 5	Hua River.....	48
Photograph 6	Flooding in Central Can Tho	51
Photograph 7	Banks of Hua River.....	52
Photograph 8	Mangrove Replanting and Local Fisherman	64
Photograph 9	Fishing communities in Quy Nhon.....	64

Appendices

Appendix A	City Selection Tool
Appendix B	Stakeholder Feedback
Appendix C	NGO by Province
Appendix D	Disaster Risk Mangement

1 Introduction

The Rockefeller Foundation is undertaking a study of various countries in East Asia to identify cities that are vulnerable to climate change impacts. They wish to engage at city level within East Asian countries to identify and assess their capacities to manage and incorporate climate change initiatives.

The study is required to identify the political, social, economic and environmental issues at city level that will be impacted by climate change. It is intended that the outcome of the initiative will be the identification of select cities to engage with at a deeper level, and then identifying the needs, requirements and initiatives that should be implemented to allow the cities to build their capacity and resilience to the impacts of climate change.

Rockefeller have engaged various experts in the arena of climate change and these individuals have provided input at various stages of the study at several workshops held in Hong Kong and London. These experts form an advisory group which provides comment, overview and support to the study.

In addition ISET have been engaged by Rockefeller to guide the assessment methodology along with Arup UK who have acted as Project Managers for the study.

The study has been broken down into 3 phases of study with the following general objectives.

- Phase 1 – Country city assessment and screening.
- Phase 2 – Detailed city level engagement and assessment.
- Phase 3 – Implementation of Climate Change Resilience in the selected City or Cities.

1.1 Background

The various merits and operating constraints of the countries within the region for engagement have been studied previously by Rockefeller. The countries were shortlisted down to India, Indonesia, Thailand and Vietnam. Three Country Assessment Partners (CAPS) have been engaged to cover each of the countries. Ove Arup & Partners Hong Kong Ltd with support from a Vietnamese and Thailand in country partners are carrying out studies on various cities in each of those countries.

Rockefeller previously identified an initial list of cities of interest in Vietnam as follows:

- Ho Chi Minh City; and
- Da Nang.

During the early stages of the country assessment it became clear that the original cities for consideration should be expanded to include the following:

1. Quy Nhon City;
2. Dong Hoi City;
3. Phan Thiet City;
4. Hue;
5. Da Nang;
6. Can Tho; and
7. Hai Phong

The CAP program in Vietnam undertook a high level screening of these seven cities to identify three candidate cities for further assessment and consideration.

1.2 Purpose of this Report

This report forms the deliverable for the first Stage assessment of study.

1.3 Use of This Report

This report has been produced for the Rockefeller in accordance with their particular instructions and requirements. It is not intended to be used by third parties and no warrant is given to those using it.

It is intended as an initial report on the selection of the cities in Vietnam from recent interviews and meetings held with various government departments and non-governmental organisations operating in Vietnam.

1.4 Acknowledgement

This report has benefited from the valuable and significant assistance of our in-country partner (Dr Sinh and his team) who has provided insight into the operations of Vietnamese government at National, Regional and Local level. Their assistance in organizing access and meetings with government is acknowledged.

2 Country Overview

2.1 Population, culture, governance and political structures

2.1.1 Location

The Socialist Republic of Vietnam is the easternmost country on the Indochina Peninsula in Southeast Asia. It is bordered by China to the north, Laos to the northwest, Cambodia to the southwest, and the South China Sea to the east (Figure 1).

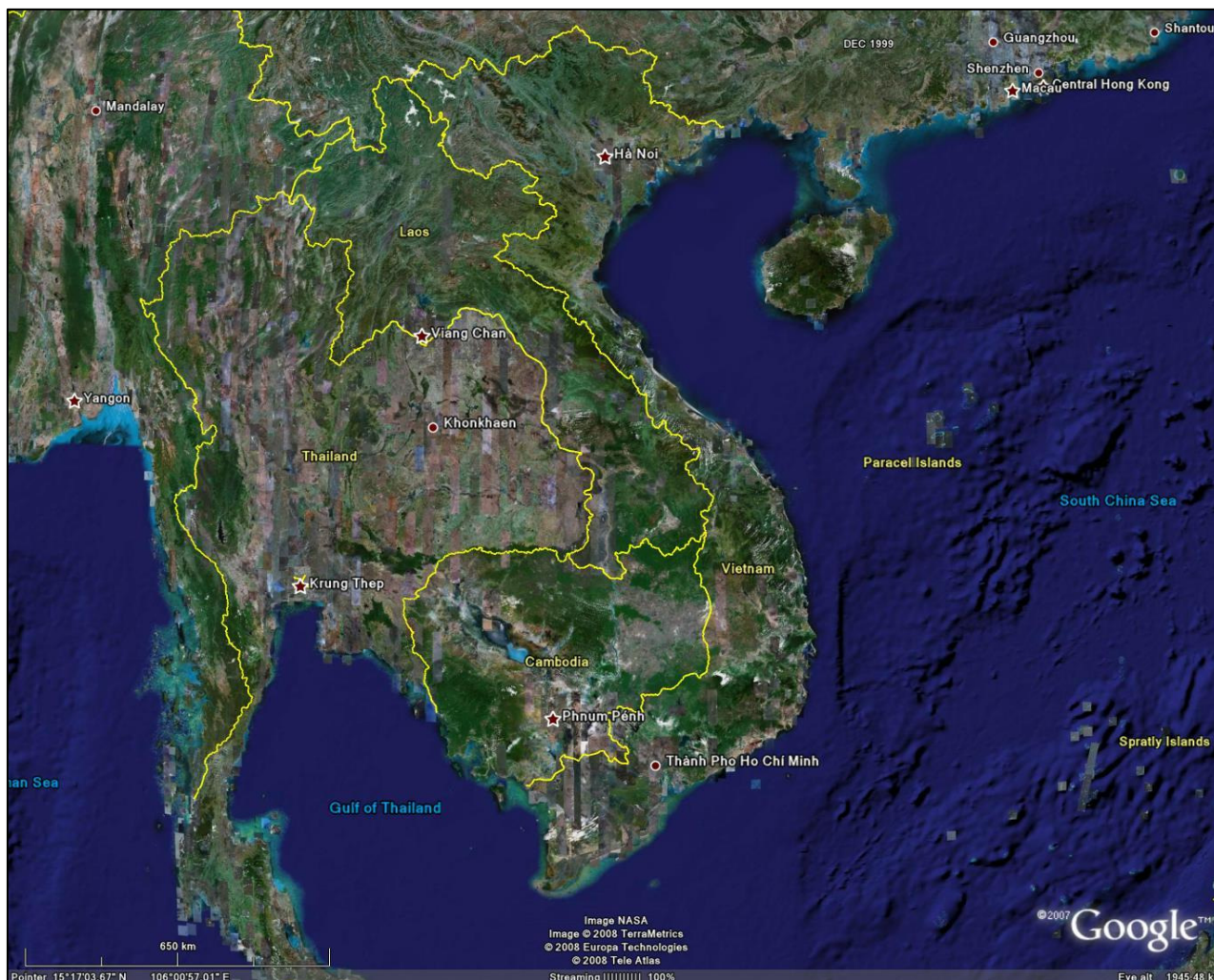


Figure 1 Coastal Areas of Vietnam

2.1.2 Topography / Regional Setting

Vietnam can be split up into five topographical land areas that traverse the country from north to south. At the northern portion of the country are the Northern Highlands which falls towards the delta of the Red River to the south where Hanoi is located. The central portion of the country is characterised by the Annamite Mountain Range with the mountains falling towards the eastern coastal margins. The Coastal Lowlands form a narrow strip of land along a large portion of the central and southern section of the country. In the south lies the Mekong Delta which covers a wide area on the southern tip of Vietnam.

Vietnam covers a land area of around 320,000 km² with a long coastal margin.

The Vietnamese coastline is generally exposed to the prevailing winds and tropical storms with over 3,260km of coastline forming the edge of the landmass comprising Vietnam, Laos and Cambodia. Significant impacts from tropical storms and typhoons can be experienced along the coastal margins.

The Northern Highlands

This range of mountains forms the eastern extension of the Himalayan massive which is locally known as the Hoang Lien Son Range. The mountain peaks rise to over 3000m in places and the general area is mountainous steep terrain. The mountains decrease in elevation towards the south and towards the north east.

The Red River Delta

This is a wide fertile plain of the Red River. To the south, separated by a narrow plain and an archipelago of karst limestone islands lies the Gulf of Tonkin and the South China Sea. The coastline is mostly muddy in character with some beach areas near higher ground and islands.

The Annamite Mountains

This range of mountains forms a ridge running inland from the coastal margins from north to south which rises in height to around 1500m in places. Some high plateaus exist within the mountain range with fertile volcanic soils.

The Coastal Lowlands

The northern edge of the coastal lowlands is bounded by the granite mountains comprising the Hai Van Pass that descends to Da Nang. The Coastal Lowlands form a narrow strip of flat lying land running the length of the coastline which are broken periodically by local hills and a mountainous area near Nha Trang.

Mekong Delta

This area forms a large delta on the southern extremity of Vietnam. A large proportion of the area lies close to existing sea level but there are occasional areas or localised hills of higher ground usually comprising of karst or limestone hills rising above the floodplain.

2.1.3 Population

Vietnam contains a population of over 85 million people (2008) and is currently ranked the 13th most populous country in the world. The population in 1999 was reported at around 76 million and the general population density relative to the whole country area is about 253 people per square kilometre.

Within Vietnam there are numerous ethnic groups with the majority Kinh forming the largest ethnic group. Other ethnic groups in Vietnam include Tay, Thai, Muong, Khome, Hoa, Nun, Hmong, Khmer, Chinese as well as other minority groups.

From 1979 to 1989, it was identified that the country's population increased by 22.7 percent, but from 1989 to 1999 the increase declined to 18.5 percent. It is thought that the population growth will continue to reduce. During the 1990s, Vietnam experienced a sharp decline in its annual population growth rate from nearly 2 percent at that beginning of the decade to 1.4 percent by 2000. The population growth rate per year is estimated in 2008 to be about 0.99 percent per annum.

The population demographics and urbanisation is discussed in more detail Section in 2.4.

It is anticipated that increased storm surge and the threat of flooding is likely to increase in the coming 50 years. The population distribution is concentrated into the northern delta regions of the Red River and the Southern Mekong Delta. The coastal margins also have a significant concentration of Vietnam's population.

Agriculture and fertile ground in the delta areas provides the main source of income for the rural populations. Urban areas are also concentrated in these areas where Hanoi and Ho Chi Min cities are located.

The communities along the coastal margins rely quite heavily on the sea for their livelihood.

Poorer populations appear to be more concentrated in the marginal highland areas of the country while there appears to be a reduced percentage of poor in living in the low lying coastal or delta regions of the country (Figure 2 and Figure 3).

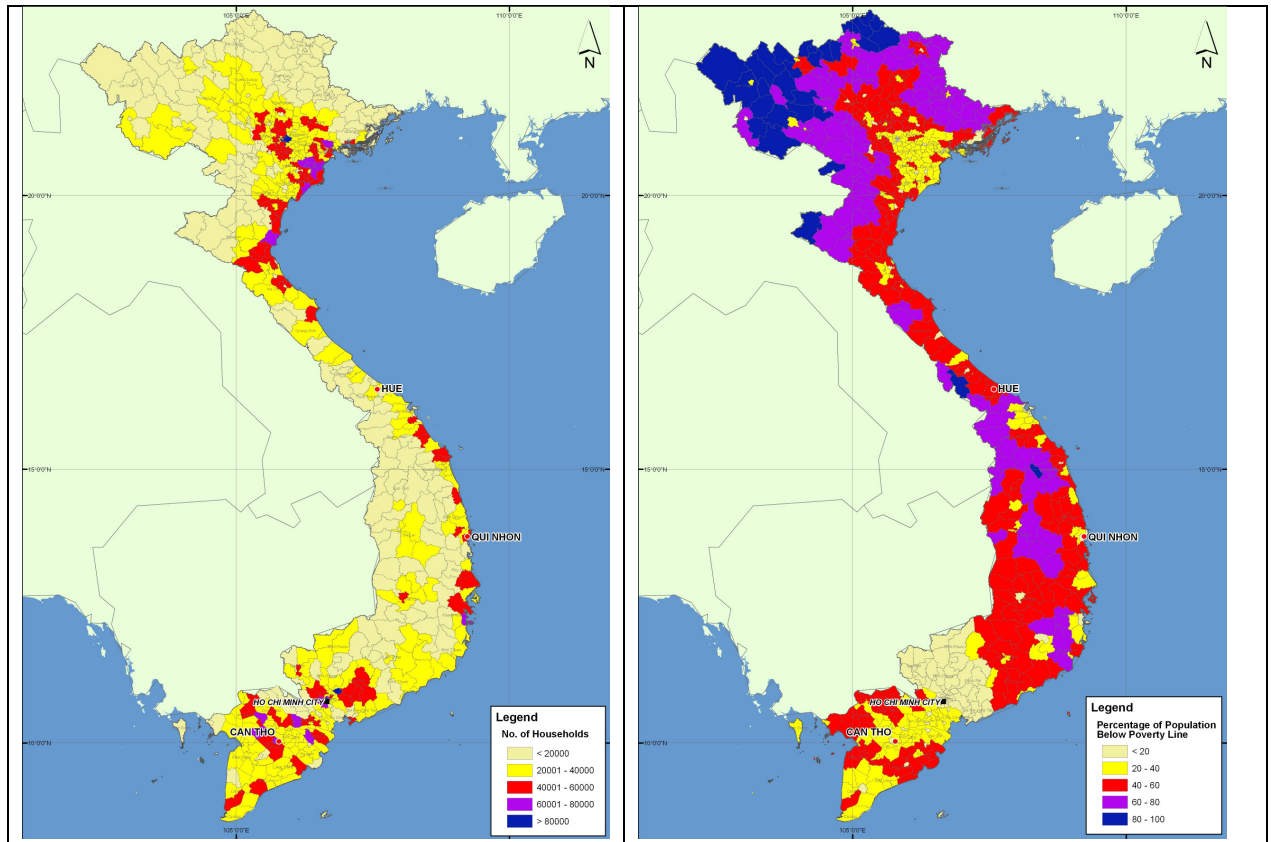
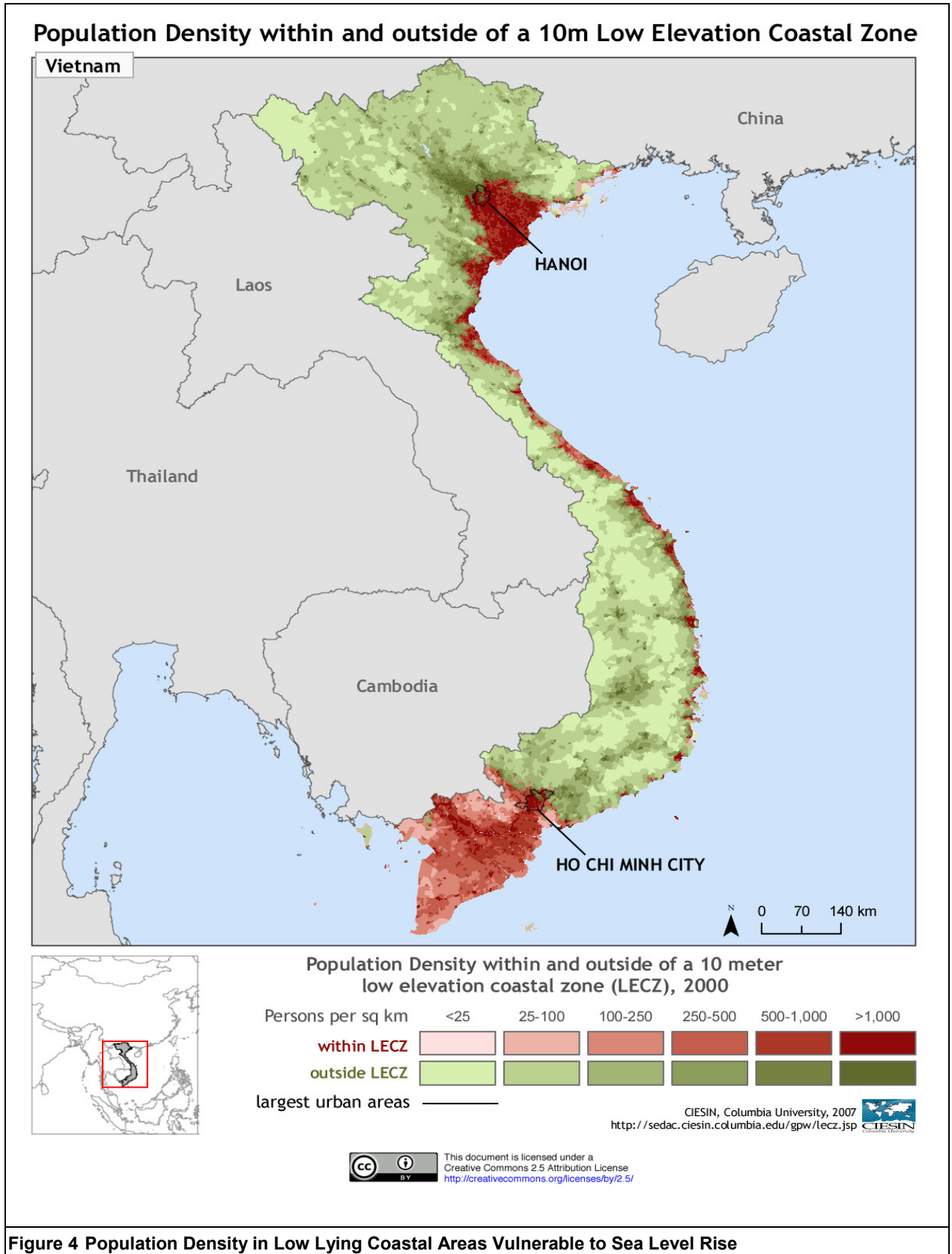


Figure 2 Distribution of Households

Figure 3 Distribution of Poor in Vietnam

(Source: The Poverty Mapping Project at CIESIN)

When the population distribution is compared with the vulnerable low lying areas of Vietnam it is noted that there are large areas where the impact of sea level rises is likely to be significant. Figure 4 shows the distribution of the population densities above and below the 10m elevation.



2.1.4 National Level Governance

Vietnam is governed through a highly centralised system dominated by the Communist Party. A Party Congress meets every five years to set the direction of the party and the government. The 160-member Central Committee, which was elected by the Party Congress, usually meets at least twice a year (Figure 5). Though Vietnam remains a single-party state, adherence to ideological orthodoxy has become less important than economic development as a national priority.

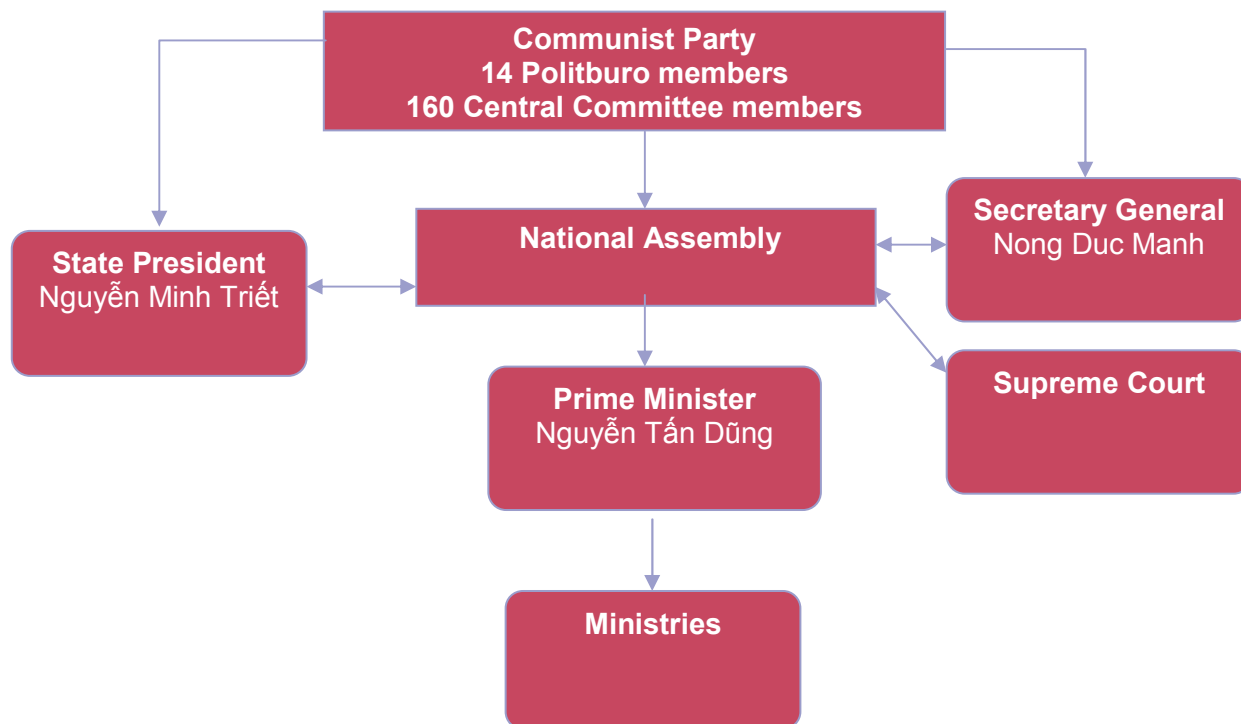


Figure 5 National Government Structure of Vietnam

Communist Party policy is set by the Politburo that comprises fourteen members with the top four positions held by the Party General Secretary, General Minister of Public Security, the State President, and the Prime Minister.

The offices of the president and the prime minister are powerful executive agencies. The President is head of state, nominal commander of the armed forces and chairman of the Council on National Defence and Security. The Prime Minister heads a cabinet currently composed of three deputy prime ministers and the heads of twenty-six ministries and commissions, all confirmed by the National Assembly.

According to the Constitution, the National Assembly is the highest representative body of the people and the only organisation with legislative powers. It has a broad mandate to oversee all government functions. In recent years the National Assembly has become more vocal and assertive in exercising its authority over lawmaking. It is still subject to Communist Party direction with around 80% of the deputies in the National Assembly Communist Party members. The assembly meets twice yearly for seven to ten weeks each time and elections for members are held every five years. There is a separate judicial branch, but it is relatively weak and overall there are few lawyers.

2.1.5 Provincial Level Governance

Vietnam is divided into 59 provinces and five centrally-controlled municipalities that exist at the same level as provinces which are; Can Tho, Da Nang, Hai Phong, Hanoi, and Ho Chi Minh City.

The provinces are divided into districts, provincial cities, and towns which are subdivided into towns or communes. The centrally-controlled municipalities are divided into rural districts and urban districts, which are subdivided into wards.

Vietnamese provinces are controlled by a People's Council elected by the inhabitants. The People's Council appoints a People's Committee, which acts as the executive arm of the provincial government. This arrangement resembles simplified structure of the situation in Vietnam's national government. Provincial governments are expected to be subordinate to the central government.

Each People's Council has a Standing Committee made up of the Chairperson and his/her deputies, who are elected from among the representatives in the People's Council.

2.1.6 Climate

Vietnam has a climate that varies dramatically from one region to another. High rainfall and monsoons affect most of the country.

The north (Hanoi), is subtropical. Summers between May and September are very hot with plenty of rain, while winters, from November to March, are cold and relatively dry. Temperatures in winter in the highlands are colder still.

The South of Vietnam, including Ho Chi Minh City is in the tropics, and close proximity to the sea, brings steadily warm to hot temperatures all year round. The dry season is between December and April. Rains begin in May and become heavy from June to August.

Annual mean temperatures range between less than 10°C in a few isolated high altitude areas of the highlands, to between 25 and 30°C in the low lying southern areas of the country. The mean annual temperatures for Vietnam and the surrounding region is shown in Figure 6.

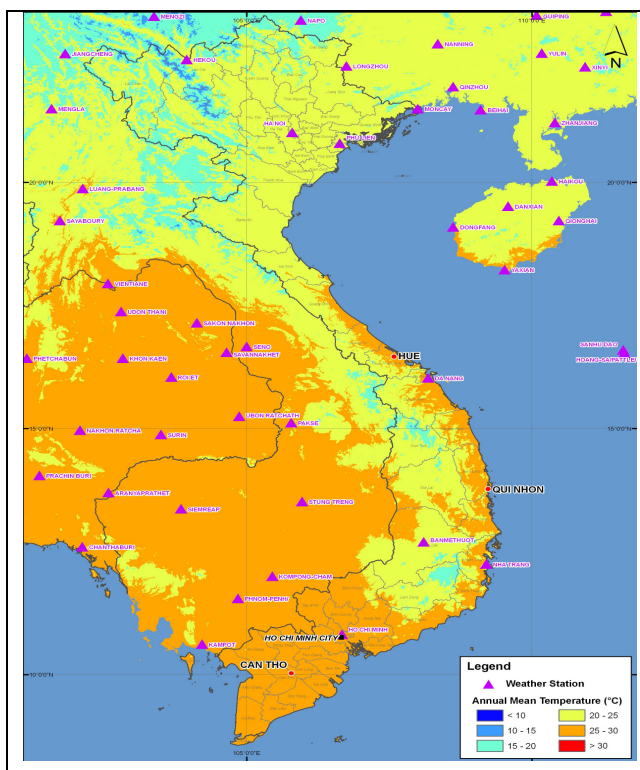


Figure 6 Mean Annual Temperature (1950 - 2000) (www.worldclim.org NOAA GHCN V2)

Annual rainfall typically ranges between 1400mm to 2400mm though in areas it can be as high 5000mm or as low as 600mm in any one year. Typhoons and tropical storms can impact the country usually in the peak rainy season from July to November.

The coldest months usually are experienced between December and February and the hottest months from June to August. The distributions of the coldest and hottest recorded months are shown on Figure 7 and Figure 8 respectively.

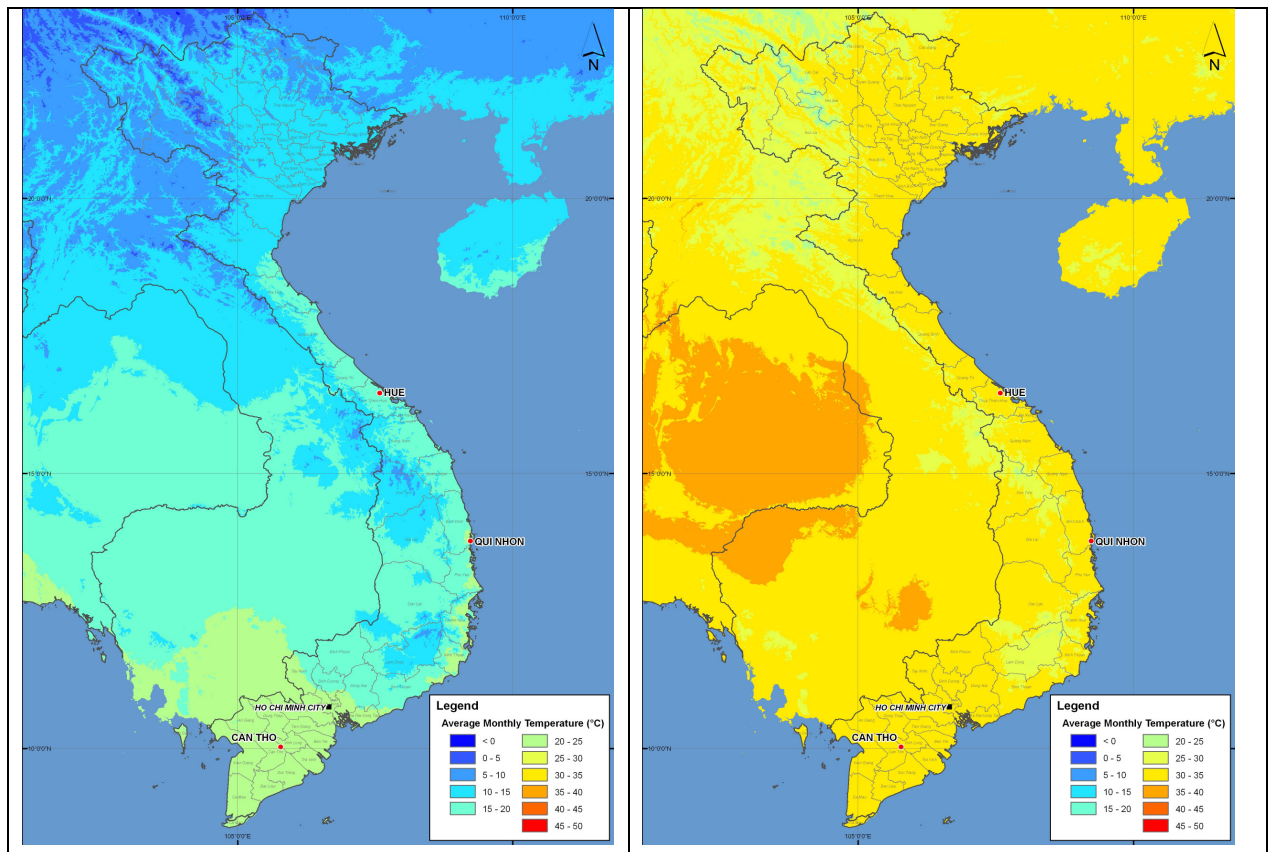
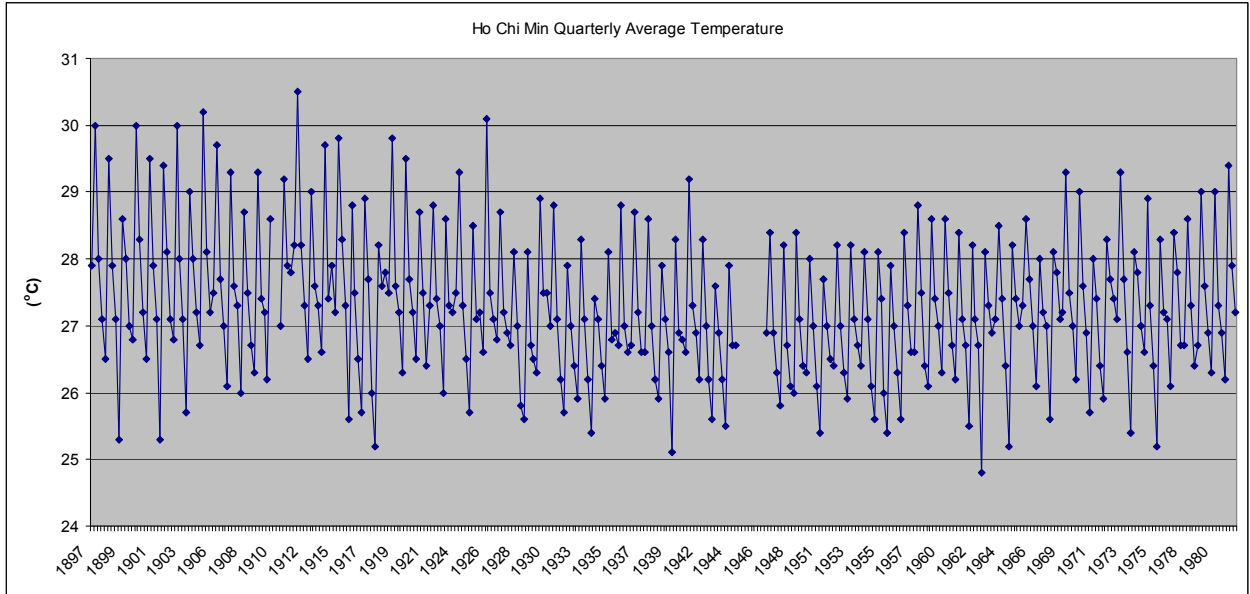


Figure 7 Coldest Month (1950 - 2000)
(www.worldclim.org NOAA GHCN V2)

Figure 8 Hottest Month (1950 - 2000)
(www.worldclim.org NOAA GHCN V2)

The driest months usually are experienced between December and February while the wettest months usually occur from July to September. The distributions of the driest and wettest months are shown on Figure 9 and Figure 10 respectively.



The quarterly average temperature from Ho Chi Min city is plotted above from records from 1897 to 1980. This data shows that there has been a general drop in average temperature from the start of the century to just after world war II. Since the 1950's there appears to be an upward trend in temperature.

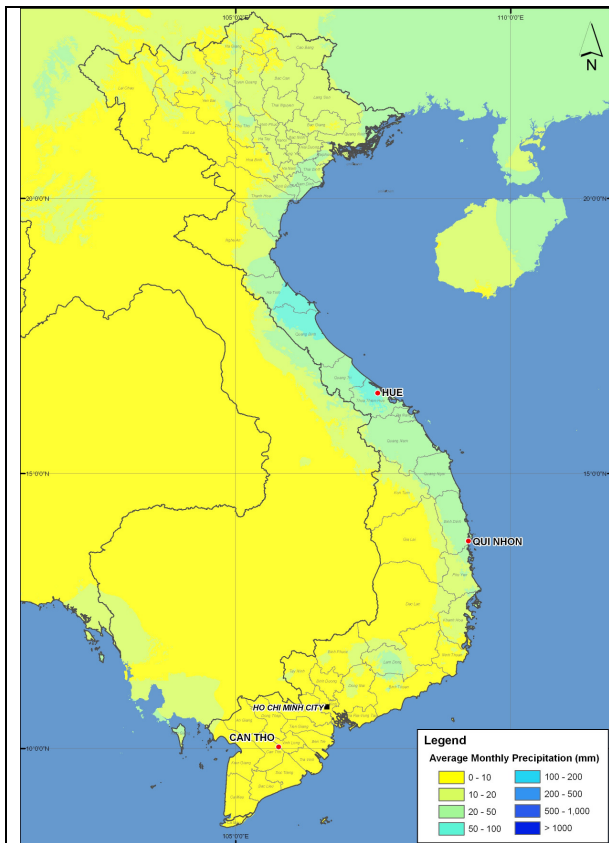


Figure 9 Precipitation of Driest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2)

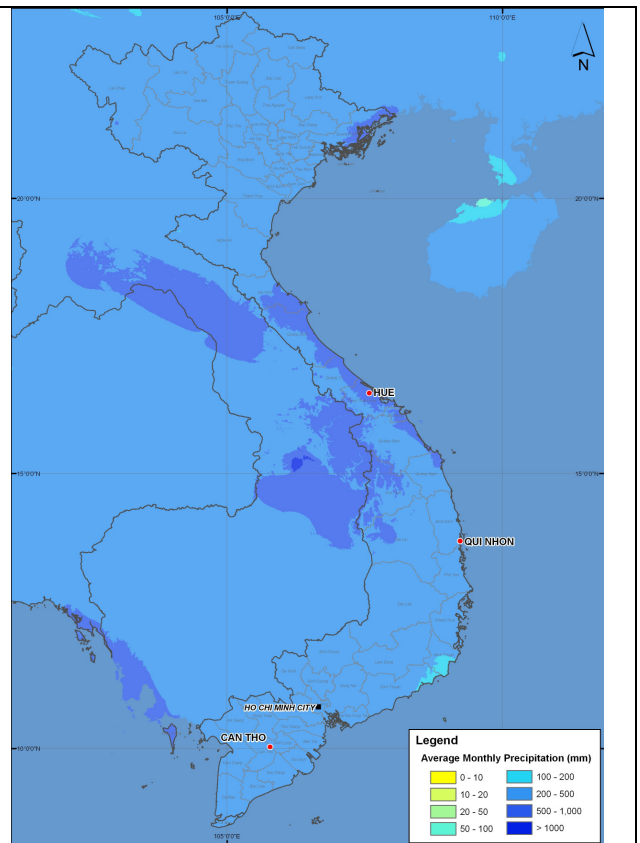


Figure 10 Precipitation of Wettest Month (1950 - 2000) (www.worldclim.org NOAA GHCN V2)

2.2 Climate Change

The Vietnamese coastline borders the South China Sea and the country is frequently hit by cyclones and typhoons. The broad deltaic areas of Vietnam where large rivers such as the Red River in the north and the Mekong in the south deposit silt and fine sand into the surrounding areas are typically fertile and produce large quantities of food and income for rural agricultural areas. Low lying land forms large areas of the coastal margins of Vietnam making them vulnerable to climate change and sea level rise

Vietnam's Initial National Communication to the UNFCCC (2003) provides detailed predictions regarding climate change impacts in Vietnam of which the most important are summarized as follows:

Temperature

- The average temperature is estimated to increase 2.5°C by 2070. Inland average temperature (focus mainly on the highlands) is predicted to increase by 2.5°C, while the average temperature of coastal areas may increase 1.5°C. Possible effects of such increase include drought, lost agricultural productivity, and increase of epidemic disease such as malaria and dengue;
- Annual average high and low temperatures are also expected to increase. The number of days with temperature higher than 25°C will also increase. This increase will significantly affect the country's ecosystems, farming seasons, and human health.

Rainfall

- The North and the South regions are affected by the Southwest monsoon but the seasonal rainfall amount decreases in July and August and increases in September, October and November. In the Central regions, rainfall is predicted to increase in the rainy season by 2070;
- The vapour transpiration rate will also increase due to a shift in temperature. Because rainfall is concentrated in the rainy season, rainfall in the dry season is predicted to decrease by 2070 in Central Vietnam and droughts will occur more frequently.

Sea Levels

- Sea levels in Vietnam have increased 5 cm within the past 30 years. Sea level is expected to rise up to 9 cm in 2010; 33 cm in 2050; 45 cm in 2070; and 1 meter in 2100.

Typhoons

- In the 1950's, typhoons landed in Vietnam around August in the North, October in the Centre and in November in the South. However in the 1990's the typhoon season is observed to occur later and the trajectory has moved more southerly in recent years;
- Climate change would lead to increased sea surface temperatures in higher latitude regions of the Pacific Ocean. It will lead to more typhoons occurring in the northwest Pacific Ocean, affecting Vietnam;
- In the next decades, sea surface temperatures are predicted to rise, causing higher wind velocity and longer duration typhoons. This effect will be exacerbated during El Niño years.
- Recent studies suggest that a 1 meter rise in sea level would affect approximately 5 percent of Vietnams land area and 11 percent of the population reducing GDP by around 10 percent (Dasgupta et al. 2007)

2.3 Climate Change policy, initiatives and institutions

2.3.1 Policy and Institutions

Climate change policy in Vietnam is undergoing a period of transition driven by the development of the National Target Plan (NTP). The NTP is currently in draft form and was submitted to the Government on 31st of July for approval. A history of the development of Climate Change policy in Vietnam is listed below:

- 1992 – Signs United Nations Framework Convention on Climate Change (UNFCCC);
- 1993 – National Assembly approves the Environmental Protection Law;
- 1994 – Ratifies United Nations Framework Convention on Climate Change (UNFCCC);
- 1998 – Signs Kyoto Protocol;
- 2002 – Ratifies Kyoto Protocol;
- 2003 – Submits Vietnam Initial National Communication to UNFCCC;
- 2004 – Drafts National Strategy for Clean Development Mechanism; and
- 2008 – National Target Plan (NTP) approved by Ministry of Natural Resources and Environment (MONRE) and submitted to National Assembly for approval.

The NTP is expected to be approved by the end of 2008 after which it will serve as the national strategy for climate change in Vietnam. It will require the establishment of a steering committee chaired by the Prime Minister and MONRE as the Vice Chair. It is intended that having the Prime Minister as the Chairman will sufficiently empower the committee to drive policy and action.

Following approval of the NTP, MONRE with input from relevant experts and ministries will be required to undertake and complete scenario predictions and an impact assessment of these scenarios by 2009. Discussions with MONRE indicate this timeline is ambitious but would be achieved given the political will driving it.

Each Ministry (eg Ministry of Construction, Ministry of Planning and Investment, Ministry of Health etc) will be required to prepare an Action Plan to deliver the strategy and address the impacts predicted under the scenarios. In turn, each Province and the departments within them (eg Department of Environment, Department of Construction, Department of Planning and Investment, Department of Health¹ etc) will be required to prepare an action plan to deliver the strategy and address the predicted impacts. The action plans are scheduled for completion by 2015.

The proposed structure of a national level steering committee together with action plan preparation at the national level by the ministries, and at the province level mirrors the disaster management and preparedness model employed in Vietnam. The exception is that the sub chair of the national level steering committee is the Ministry of Agriculture and Rural Development (MARD). It is intended that by developing action plans at the national level through the ministries and at the lower level through the province and departments, the NTP can achieve strong linkages at both horizontally and vertically.

¹ At Province level, the Ministries become Departments, which administratively report to the Province, but on a technical level they work with their respective Ministry (eg Ministry of Health and Department of Health)

2.3.2 Non Government Organisations and Donor Institutions

Non Government Organisations (NGO) and Donor Organisations are extremely active in Vietnam. NGO operate a climate change working group details of which can be found here:

<http://www.ngocentre.org.vn/node/5457>

The key NGO related to climate change are:

- Oxfam
- IUCN
- WWF
- CARE
- Red Cross

Significant investment from Donor institutions are flowing into Vietnam for Climate Change related activities (Table 1). The key organisations include:

- Danish International Development Assistance (DANIDA)
- Swedish International Development Co-operation Agency (SIDA)
- Canada International Development Agency (CIDA)
- UNDP
- World Bank

DANIDA in particular is very active and investing significant resources into climate change related projects into Vietnam.² The World Bank is also active and though previously their focus has been more towards infrastructure and environmental related programs. They have however recently appointed a senior Urban Coordinator.

2.3.3 Current Initiatives

Vietnam operates a coastal defence system of Dykes and Mangrove Restoration (eg 5000km of river dikes and 3000 km of sea dykes) maintained by local Government. Previously repair works were reliant on, and undertaken by, local labour. With a shift towards a market economy, this has been gradually replaced by hired labour and local taxes. Efforts are being made to improve early warning disaster systems including linking of meteorological and hydro-meteorological bureaux responsible for forecasting with mass media to disseminate information more rapidly and to a wider audience.

In addition, there are a number of initiatives underway at the national level in Vietnam which are project specific. The main projects identified are presented below in Table 1.

Table 1 Recent or Current Climate Change Related Projects in Vietnam

Title	Description
Project Name	Climate Change Impacts in Huong River Basin and Adaptation in its Coastal District Phu Vang, Thua Thien Hue province
Donor/supporter	Netherlands Climate Assistance Program (NCAP) The NCAP is a multi-country program consisting of 15 different small-budget projects of about 80,000 Euro per 18 month project (1 phase) to 160,000 for 36 months project (2 phases), which is usually a project on climate change adaptation issues in 15 different developing countries in Asia, Africa and Latin America. The aim is to help the people and relevant authorities in those countries to better adapt to climate change. Vietnam is one of the selected countries, with budget of 80,000 Euro

² Given the significant experience DANIDA has on major programs in Vietnam, it would be beneficial to approach them to discuss program implementation, the lessons learnt and checks and balances that could be applied for more efficient outcomes.

Title	Description
	from Netherlands and 10,000 Euro from the Vietnam Government.
Budget	Euro 80,000 international funding + Euro 10,000 local funding
Timing	February 2006 – June 2008
Supervising Agency	Ministry of Natural Resources and Environment (MONRE)
Implementing Agency	Institute of Meteorology and Hydrology (IMH), now renamed as Vietnam National Institute of Meteorology, Hydrology and Environment (IMHEN), in collaboration with Thua Thien Hue Province People's Committee
Scope	<p>The Vietnam project was a pilot study of climate change impacts on the natural environment, including water systems and flows, of the most vulnerable people and adaptation policies and measures in Viet Nam.</p> <p>The project examined the Huong River Basin in a central coastal Thua Thien Hue Province in general and its lagoon population in particular. Future impacts of climate change on the water system and flows of the entire river basin were predicted. The social-economic focus was on the coastal district of Phu Vang in order to involve vulnerable stakeholders in preparing detailed measures to adapt to the projected climate change impacts in their local area.</p>
Project Name	Benefits on Climate Change Adaptation from Small and Medium Scale Hydropower plants: Synergies and Trade-offs With Rural Development
Donor/supporter	Danish International Development Assistance (DANIDA)
Budget	US \$400,000 (Approx)
Timing	2007- 2009
Supervising Agency	MONRE
Implementing Agency	The IMHEN in collaboration with Lao Cai province People's Committee
Scope	<p>Investigate climate change adaptation and mitigation effects from small and medium scale Hydropower Plants and identify synergies or trade-offs with rural development objectives. The results of the case studies in the North-West province of Lao Cai should be used as the basis for replication in larger areas.</p> <p>Possibilities to explore include the scope for small and medium scale hydropower to generate win-win-win benefits, i.e. benefits for both rural development, human well-being and CC adaptation benefits in addition to the CC mitigation benefits.</p>
Project Name	Impacts of Sea Level Rise (SLR) to Vietnam and adaptation measures
Donor/supporter	DANIDA
Budget	US\$850,000 (Approx)
Timing	2008 - 2010
Supervising Agency	MONRE
Implementing Agency	Vietnam National Institute of Meteorology, Hydrology and Environment (IMHEN)
Scope	Assessment of the impacts of SLR to Vietnam coastal areas and develop adaptation options and pilot studies in several areas of all three regions of Vietnam.

Title	Description
Project Name	Impacts of climate change to water resources of Vietnam and adaptation measures
Donor/supporter	DANIDA
Budget	US\$ 800,000 (Approx)
Timing	2008 - 2010
Supervising Agency	IMHEN
Implementing Agency	MONRE
Scope	Assessment of the impacts of climate change to water resources in Vietnam and recommend and develop adaptation options, build capacity for relevant stakeholders and initiate pilot studies in several areas.
Project Name	Awareness rising and capacity building for local authorities and communities on climate change adaptation and mitigation efforts, contributing to the implementation of the UNFCCC and Kyoto Protocol
Donor/supporter	GEF
Budget	US\$ 50,000 (Approx)
Timing	2006 - 2008
Supervising Agency	MONRE
Implementing Agency	Vietnamese NGO "Center for Science and Technology in Hydro-Meteorology and Environment
Scope	Raise awareness and capacity building for local authorities and communities through several pilot areas in 3 provinces: Lao Cai, Ninh Thuan and Ben Tre. This project aims to strengthen planning and develop local action plans, education and training, and promote indigenous knowledge.
Project Name	Climate change in South East Asia (SEA): impacts and vulnerability assessment and adaptation measures for rice production and water resources
Donor/supporter	Collaborative research with SEA START, with some financial support from SEA START
Budget	Unknown
Timing	2007 - ongoing
Supervising Agency	MONRE
Implementing Agency	Vietnam National Institute of Meteorology, Hydrology and Environment (IMHEN) in collaboration with SEA START.
Scope	Study of impacts and vulnerability assessment, build climate change scenarios and make climate projection for SEA region and Vietnam (Note: while not confirmed, highly likely this study is tied in with the scenario prediction and action plan development required under the NTP. SEA Start are well known for the technical capacity for climate change predictions)
Project Name	Initial National Communication of Vietnam to the UNFCCC as implementation of the commitments of Vietnam to the UNFCCC

Title	Description
Donor/supporter	GEF (through WB), and the AusAID
Budget	Unknown
Timing	1999 - 2002
Supervising Agency	MONRE
Implementing Agency	Institute of Meteorology and Hydrology (IMH) in collaboration with line agencies from different sectors (Energy, Industry, Transport, Agriculture, Forestry etc.)
Scope	To enable the country to collate previous results, fill in gaps and further enhance its scientific and technical capacity so that the country can prepare the report of its initial national communication. The Vietnam initial national communication report has been submitted to UNFCCC Secretariat in November 2003.
Project Name	Building and strengthening capacity for implementation of CDM in Vietnam
Donor/supporter	DANIDA
Budget	Unknown
Timing	2004 - 2007
Supervising Agency	MONRE
Implementing Agency	The International Cooperation Department (ICD) of MONRE
Scope	Strengthen and disseminate knowledge and information regarding CDM and climate change for the relevant government officers and business representatives, develop the legal and institutional basis for CDM initiation and implementation.
Project Name	Vietnam National Strategy for Clean Development Mechanism (CDM)
Donor/supporter	AusAID and the WB
Budget	US\$ 200,000 (Approx)
Timing	2000 - 2003
Supervising Agency	MONRE
Implementing Agency	Institute of Meteorology and Hydrology (IMH)
Scope	Aims to analyse the CDM potential for Vietnam and develop the National Strategy with a further plan of action.
Project Name	Second National Communication of Vietnam to the UNFCCC
Donor/supporter	GEF
Budget	Unknown
Timing	2006 - 2009
Supervising Agency	MONRE
Implementing Agency	The International Cooperation Department (ICD) of the MONRE
Scope	Unknown

Title	Description
Project Name	Enhancing Capacity of the National Designated Authority for addressing climate change
Donor/supporter	DANIDA
Budget	Unknown
Timing	2008 – 2009
Supervising Agency	MONRE
Implementing Agency	The International Cooperation Department (ICD) of the MONRE
Scope	Capacity and institutional strengthening, integration of climate change into the policy making and planning process.

2.3.4 Historical Context

Vietnam signed the UNFCCC in June 1992 and ratified it on 16 November 1994. In November 1998 the Government of Vietnam signed the Kyoto Protocol. The Hydrometeorological Service (HMS), now called Ministry of Natural Resources and Environment (MONRE) was designated by the Government as the National Authority focal point for country activities relating to implementing of the UNFCCC and the Kyoto Protocol. Since signing the Convention, Vietnam has carried out a large number of studies and initiatives as part of the national response to climate change issues. A summary of projects are provided below for reference.

1. UNDP/UNITAR/GEF "CC:TRAIN (Phase 1)" -- Vietnam was one of the three participating countries in this project which started in June 1994 and was completed in June 1996. The project was implemented by the HMS in cooperation with relevant ministries and government agencies. Its objective was to assist the countries in formulating climate change policy for the implementation of the UNFCCC.
2. "Asia Least-Cost Greenhouse Gas Abatement Strategy" (ALGAS) Project -- Vietnam was one of the 12 participating countries in this UNDP/GEF/ADB project, which started in 1995. It aimed to enhance and improve the national capacity of the participating countries in compiling a GHG Inventory, assessing mitigation options, and developing a least-cost GHG abatement strategy and action plan.
3. UNEP/GEF project on "Economics of GHG limitation - Phase 1: Establishment of a Methodological Framework for Climate Change Mitigation Assessment". This project built on previous work and dealt with GHG mitigation analysis and cost-effective options, focusing on four main issues: (a) associated macro economics; (b) land use and forestry; (c) Agriculture, and (d) energy.
4. "Vietnam Coastal Zone Vulnerability Assessment" -- This project was funded by the Government of the Netherlands and executed by a Vietnamese project team from Marine Hydrometeorological Centre of Hydrometeorological Service working closely together with a European team comprised of Dutch and Polish experts in coastal zone management. The objective was to assess the vulnerability of the entire coastal zone of Vietnam to the impacts of accelerated sea level rise due to climate change and outlined the first steps towards an Integrated Coastal Zone Management (ICZM) in Vietnam. Pilot studies at three sites - Nam Ha, Hue and Vung Tau - were included to provide insight into present coastal management problems.
5. "Climate Change in Asia: Vietnam" - A Regional Study on Global Environment Issue funded by ADB and implemented by the Ministry of Water Resources and Hydrometeorological Service of Vietnam. The project started in 1992, and a report was published by ADB in July 1994. Its scope includes GHG emission inventory based on

1990 data and provided mitigation options for energy and industrial, building, transportation, agricultural, forestry and land use sectors. In addition, it also included the socio-economic impact study on the Red River Delta and Mekong River Delta, and assessed the impacts on agriculture, monsoon and water resources, coastal zone, forestry, human health, energy system, transport and infrastructure. Policy options to cope with climate change for agriculture, water resources, coastal protection, forestry, human health and natural disasters were discussed.

6. "The potential socio-economic effects of climate change on Vietnam" - This UNEP-funded project aimed to consider the effects of present-day climate variability on the natural environment and economy of Vietnam, and to evaluate the implications of possible future climate changes that might result from the GHG emission. It consisted of a number of research activities focusing on the assessment of potential impacts of climate variability in Vietnam on agriculture human health, energy production and use, mangrove forests and coastal fisheries.
7. "Socio-economic and physical approaches to analyzing climate change impacts in Vietnam" funded by the UK Economic and Social Research Council and implemented by the Centre of Environment Research, Education and Development (CERED), the Hanoi University and the Centre for Social and Economic Research on the Global Environment and the Climatic Research Unit, University of East Anglia, UK. This 24 month research project started in April 1996. It is an interdisciplinary study of socio-economic vulnerability to climate change impacts in the coastal zone of the Red River delta of Vietnam. The ultimate goal is to develop an effective approach in support of policy development regarding for adaptation relevant to both the case study site and more generally, to vulnerable social groups and regions.
8. "Vietnam: Preparation of initial national communication related to the United Nation Framework Convention on Climate Change" funded by GEF and implemented by the IMH.
9. "Capacity building for adaptation to climate change in Central Vietnam" (CACC project) funded by CIDA Canada (2002-2005), implemented by the CEI with the objective to strengthen capacity to plan and implement community-based anticipatory adaptation strategies through disasters preparedness and integration of risk reduction and mitigation into local development planning.
10. "Preparedness for disasters related to climate change" supported by the Netherlands Red Cross and implemented by The Vietnam Red Cross Society. The objective of the project was to strengthen the most vulnerable people communities in the disaster-prone areas to climate change and disasters to response and adapt to these disasters.

2.4 Trends and dynamic factors, including urbanization rates and urban policy

2.4.1 Urbanisation

In 2004, the population density across Vietnam was around 251 persons per square km and the urbanisation rate was 25.8 percent increasing at an average urbanisation rate 2 percent per year (Nguyen 2005).

Urban planning in Vietnam is divided into three linked categories:

1. Regional planning: identify potential development, resources and forces driving the development of a region and its urban and settlement system;
2. City master planning: form the layout of spatial structure and guidelines for urban development for 15-20 years in long term and 5-10 years in short term;
3. Detailed planning: determine the lands uses of specific urban space.

Under the master plan of Vietnam to 2020, there are 10 featured urbanization regions:

- Red River Delta and Northern Key Economic Region
- Southern and South-Eastern Key Economic Region
- Central Key Economic Region
- Mekong River Delta Region
- South Central Region
- Central Highlands Region
- North Central Region
- East Northern Region
- Middle Northern Region
- West Northern Region

The urban system will comprise two national "megacities" of Ho Chi Minh City and Hanoi and three smaller national cities of Hai Phong, Da Nang, Hue. In January 2001, the Ministry of Construction (MOC) put forward the following objectives for urban development in Vietnam:

- Decreasing densities in urban cores of large cities and increasing peri-urban densities, possibly through development of satellite cities
- Relocating polluting factories from inner cities to outer areas through tax incentives and regulation
- Stemming squatter settlements through formulation and enactment of construction standards and enforcement of codes
- Improving provision of urban services
- Implementing measures to increase supply of urban housing
- Reducing loss of prime agricultural land resulting from poorly managed peri-urban development

The reality is that these objectives face a number of challenges. Horizontal coordination among agencies is poor with little interaction. High population densities in the largest cities (eg 80,000 per people square kilometer in core Ho Chi Minh City) often exist in conjunction with industrial firms without adequate environmental infrastructure and enforcement of regulations to prevent pollution. The presence of industry also limits the use of core land for higher value urban use. The focus on economic growth attracts migration into the cities as people seek employment opportunities. This migration places pressure on existing urban infrastructure resulting in informal settlements. Urban planning is also typically very centralised with little community input (URDN 2008).

2.4.2 Poverty and vulnerability to climate change

In 1986, Vietnam embarked on its '*doi moi*' or renovation process which saw a shift from a centrally planned economy to a market driven economy. This process has seen a shift in the role of the state which traditionally provided collective security to the people. While economic growth in Vietnam is progressing strongly and indicators of GDP per capita show remarkable improvement (see GDP growth data and GDP per capita for the respective cities below), so is the level of income inequality.

The realities facing the poor in Vietnam is that they do not have the resources to diversify or cope with the impacts of climate change and as a result are the most vulnerable. As an example, the shift from historical use of local labour to repair dykes to a system of hired labour and taxes is not always affordable to the poor, nor is it of interest to wealthier households that have the means to cope during disasters (Chaudhry and Russchaert 2007).

3 City Identification Methodology

3.1 Starting point

3.1.1 Background

Ove Arup and Partners Hong Kong were originally engaged to assess two cities in Vietnam:

- Ho Chi Minh City;
- Da Nang City.

A field trip was undertaken to Vietnam with the Rockefeller Foundation from May 5th to May 9th 2008, prior to the kickoff workshop on May 14th and 15th 2008. The objective of this trip was to undertake preliminary meetings with stakeholders from Government, NGOs and Donors to obtain feedback on the two cities of Ho Chi Minh City and Da Nang.

It became evident during this trip that both cities may not be the most suitable. Ho Chi Minh City was reported as an unsuitable candidate city primarily because of the significant levels of investment already committed for climate change related initiatives. The concerns highlighted included:

- The significant amount of investment already committed and the capacity of the Government to deal with further investment;
- The interest of the Government to deal with relatively smaller investments than what had already been committed; and
- The size of the city – Ho Chi Minh City is a megacity with population far in excess of 1 million.

The suitability of Da Nang was also questioned, ironically for a number of reasons that would also further its potential as a suitable candidate city. Da Nang has a reputation as an economically focussed, proactive, well planned and forward thinking city with strong Government leadership. These were all positives in terms of Governance but the “negative” was that while many of the stakeholders thought the exposure of the city to climate change as high, the vulnerability was lower due to the strength of Government capacity and planning. Da Nang has also attracted a number of significant donor funded investments greater than USD 100 Million which could overshadow other investments of lesser size.³

3.1.2 City Revision

Based on the feedback of the Stakeholders interviewed in early May 2008, Ho Chi Minh City was removed as a potential city and number of additional cities was included. The potential cities included:

1. Quy Nhon City;
2. Dong Hoi City;
3. Phan Thiet City;
4. Hue;
5. Da Nang;
6. Can Tho; and
7. Hai Phong

The CAP program shifted towards undertaking a high level screening of these seven cities to identify three candidate cities for deeper engagement.

³ As the project progressed and deeper stakeholder engagement was undertaken, mention was made by some stakeholders regarding an earlier study undertaken by the Rockefeller Foundation previously in Da Nang that may have raised expectations within local government yet not yielded any concrete outcome.

3.2 ‘Ground Truthing’

3.2.1 Approach

Screening and refining the seven potential cities to three candidate cities was approached as follows:

- Engagement with National Level Ministries;
- Initial consultation with Donor, Academic and NGO sector stakeholders; and
- Review of background literature and cross-referencing against available data.

A guidance tool, prepared on the basis of the Workshop 1 outcomes, was used during stakeholder discussions (Appendix A). The key focus of the questions was:

- What is the **level of exposure** – the frequency and intensity of potential impacts, the degree of vulnerability and capacity of the local urban population to cope with the impact;
- What is the **character of the enabling environment** – who are the main institutions, what is the capacity and governance of the city, who are the organizations present, and what is their willingness to work with the Rockefeller Foundation. The key theme underpinning this question is “would a project implemented by the Rockefeller Foundation stand a reasonable level of success given the character and interest of the local government and non government institutions present in that City?”; and
- What is the **level of investment** – to assess at a high level whether any program made by the Rockefeller would stand a chance of success and not be “drowned out” by significant levels of currently committed investment.

3.2.2 Engagement and initial consultation

Stakeholder engagement comprised a mixed approach of in country face to face meetings during 10th to 13th of June 2008, email and phone calls. A range of stakeholders were interviewed including senior representatives from National Level Ministries, Academic and Donor Institutions and NGO (Table 2).

Stakeholder meetings followed a series of generalized questions/discussions that revolved around each of the criteria to obtain as much information relevant to the three points above. These semi-structured interviews enabled valuable opinions and anecdotal evidence to be elicited from key stakeholders. Engaging with both government and non-government sectors was also critical to obtaining a more rounded and balanced view on the current and future status of each city.

Table 2 Donor, Academic and NGO stakeholders consulted

Organization Name	Type
Ministry of Natural Resources and Environment (MONRO) – including Director General	Government
HCMC Department for Urban Planning and Architecture	Government
MONRE Sub Institute of Hydrometeorology and Environment of South Vietnam	Government
MONRE – Vietnam Institute of Meteorology, Hydrology and Environment	Government
National Institute for Science, Technology Policy and Strategy Studies	Government
World Bank	Donor
WWF	NGO – Lead for CC
CARE	NGO – lead for CC
IUCN	NGO – Lead for CC
Oxfam	NGO – Lead for CC

Organization Name	Type
Vietnam Green Building Council (VGBC)	NGO
Center for Marine Life Conservation and Community Development (MCD)	NGO
East Meets West	NGO
The Netherlands Red Cross	NGO
Ford Foundation	NGO
Hanoi University – Schools of Architecture and Civil Engineering	Academic

3.2.3 Review of background literature

As a cross check to the anecdotal evidence, a literature review was undertaken to further reinforce the suitability of potential candidate cities. This involved:

- *The Vietnam Provincial Competitiveness Index 2007, Measuring Economic Governance for Private Sector Development*, VNCI Policy Paper #12, USAID; and
- *Vietnam INGO Directory 2007*, NGO Resource Center

The Provincial Competitiveness Index (PCI 2007) was originally developed by the Vietnamese Chamber of Commerce and Industry (VCCI) and the USAID-funded Vietnam Competitiveness Initiative (VNCI) in 2005. The PCI is a tool for measuring and assessing the standards of economic governance in Vietnam's 64 provinces from the perspective of private sector businesses.

The NGO Resource Center in Hanoi maintains a register of all NGOs, their location by Province, budgets and programs in Vietnam. The Vietnam INGO Directory 2007 shows the number of NGOs present in the Province within which potential cities are located.

3.3 Shortlist

3.3.1 Stakeholder Feedback

A summary of the results for each of the seven cities is provided in the following table. For reference, Ho Chi Minh City has also been included, even though by this stage it had been excluded. More detailed descriptions of the feedback from the stakeholders consulted are contained in Appendix B.

Responses by stakeholders consulted were mixed, with none able to answer all questions provided in the list in Appendix A, and often unable to provide working knowledge perspectives of all cities. However collectively, the results of the process did allow identification of clear character themes for each respective city (Table 3).

Table 3 Stakeholder Feedback Summary

City	Comment
Can Tho	Southern city located in the Mekong Delta, known as the "bread basket" of Vietnam. Rice production in the region significant. This city received consistent mention from the majority of all stakeholders because of high risk to sea level rise and flooding. The city level government is reportedly good and it has one of the best universities in Vietnam.
Hai Phong	A large port city located in the north of Vietnam. It received consistent positive recommendation from Government stakeholders but less positive feedback from non Government stakeholders, a strong economic focus that was of more importance than other issues, and high levels of foreign investment. A key factor for this city is its population size which is reportedly greater than 2 million and on this basis alone it would fail to meet the ideal criteria of a city size less than 1 million inhabitants.

City	Comment
Phan Thiet	A smaller tourist city located in southern central regional of Vietnam. Very little was known about this city by the majority of Stakeholders consulted.
Hue	Located in the central area of Vietnam, Hue was consistently recommended by the majority of stakeholders consulted. It is highly susceptible to flooding (one of the worst areas in Vietnam), especially as it lies within the main trajectory of typhoons that are increasing in both frequency and intensity as they shift further south along the coast. The Province is targeted for development of small scale pilot climate change adaption projects under the Draft National Target Program (NTP) ⁴ . The city is known as the “cultural capital” of Vietnam and it does have a good university. Negative feedback was that it does receive a lot of external attention, particularly following recent severe flooding.
Da Nang	Centrally located and near to Hue this City was reported by all stakeholders as well planned, economically driven and run by a Government with strong capability and visionary focus. For this reason, its level of exposure was questioned. It is susceptible to flooding issues, but the planning and ability of the Government suggested that the capacity of the local population to cope is relatively higher than other areas in Vietnam. It is also an Autonomous Authority in that it does not need to defer to the State Government for approval. The World Bank reported a number of major capital projects greater than US\$100 million either recently completed or about to get underway which also raises the question of the local Government to be interested by smaller level projects.
Quy Nhon	A poor city located in the south of Vietnam. Little was known about it by the majority of stakeholders except that it was a relatively poorer city. Two international NGO’s with work experience in the city or province (Red Cross and East Meets West) reported the city government capacity and willingness as a potential partner as favorable. Furthermore, they reported the lack of resources meant that any potential project in the city would be of relatively higher value due to their scarcity.
Dong Hoi	A poor city in the northern central area above Hue. Little was known about it by the majority of stakeholders except that it was a relatively poorer city. Both Red Cross and East Meets West have worked in the city or surrounding province and reported the city favorably with the exception that the Government was not as “strong” and would tend to defer to the requirements of the State or other city level officials with more resources.
Ho Chi Minh City	Located in the south of Vietnam and the current capital. The city was consistently mentioned by all stakeholders as highly susceptible to flooding due to a poor and aged drainage system. However, negatives of the city are the significant level of investment already underway as mentioned by various Government departments and the World Bank. Any program by the Rockefeller foundation would be “drowned out,” and the additional capacity of the city government already stretched by the current projects was questioned. It is also a megacity with a population far greater than 1 million.

⁴ Ministry of Natural Resources and Environment (2008), *National Target Program to Respond To Climate Change – DRAFT*,

3.3.2 Vietnam Provincial Competitiveness Index

Description

The Provincial Competitiveness Index (PCI 2007) was originally developed by the Vietnamese Chamber of Commerce and Industry (VCCI) and the USAID-funded Vietnam Competitiveness Initiative (VNCI) in 2005.

The Vietnam Provincial Competitiveness Index is a tool that allows the assessment and comparison of the standards of economic governance in Vietnam's 64 provinces (including municipalities) from the perspective of private sector businesses. PCI 2007 used a range of indicators, which were grouped together into ten composite sub indices such as level of corruption, property rights, speed of decision making etc. These ten sub-indices included:

1. *Entry Costs*: A measure of: i) the time it takes a firm to register and acquire land; ii) the time to receive all the necessary licenses needed to start a business; iii), the number of licenses required to operate a business; and, iv) the perceived degree of difficulty to obtain all licenses/permits.
2. *Land Access and Security of Tenure*: A measure of how easy it is to access land and the security of tenure once land is acquired.
3. *Transparency and Access to Information*: A measure of whether firms have access to the proper planning and legal documents necessary to run their business, whether those documents are equitably available, whether new policies and laws are communicated to firms and predictably implemented, and the business utility of the provincial web page.
4. *Time Costs and Regulatory Compliance*: A measure of how much time firms waste on bureaucratic compliance, as well as how often and how long firms must shut their operations down for inspections by local regulatory agencies.
5. *Informal Charges*: A measure of how much firms pay in informal charges, how much of an obstacle those extra fees pose for their business operations, whether payment of those extra fees results in expected results or 'services', and whether provincial officials use compliance with local regulations to extract rents.
6. *SOE Bias (Competition Environment)*: A measure focusing on the perceived bias of provincial governments toward state-owned enterprises (SOES) and equitised firms in terms of incentives, policy, and access to capital.
7. *Proactivity of Provincial Leadership*: A measure of the creativity and cleverness of provinces in both implementing central policy, designing their own initiatives for private sector development, and working within sometimes unclear national regulatory frameworks to assist and interpret in favor of local private firms.
8. *Private Sector Development Services*: A measure of provincial services for private sector trade promotion, provision of regulatory information to firms, business partner matchmaking, provision of industrial zones or industrial clusters, and technological services for firms.
9. *Labor and Training*. A measure of the efforts by provincial authorities to promote vocational training and skills development for local industries and to assist in the placement of local labor.
10. *Legal Institutions*. A measure of the confidence of the private sector in provincial legal institutions; whether firms regard provincial legal institutions as an effective vehicle for dispute resolution, or as an avenue for lodging appeals against corrupt official behavior.

Results

The results are presented in the following table and show the rankings of economic governance from 1 (highest) to 64 (lowest), along with ratings from excellent to low. It can be seen that Da Nang ranked at No. 2 is assessed under the PCI assessment scheme to be

an efficient and well run city within its Governmental framework, relative to other municipalities. Similarly, Quy Nhon, Ho Chi Minh City, Hue and Can Tho all score highly. By comparison, Dong Hoi, at 53, is less well perceived as an economically efficient Province with good Governance structure (Table 4).

Table 4 City PCI Ranking

City	PCI 2007 Ranking ¹
Da Nang	Rank -2, score 72.95%, rating - excellent
Quy Nhon	Rank - 4, score 69.46%, rating - excellent
Ho Chi Minh City	Rank - 10, score 64.83%, rating - high
Hue	Rank - 15, score 66.24%, rating - high
Can Tho	Rank - 17, score 61.7%, rating - high
Hai Phong	Rank - 36, score 53.19%, rating - average
Phan Thiet	Rank - 39, score 52.42%, rating - average
Dong Hoi	Rank - 53, score 49.51%, rating - mid low

Note: ¹ – Scored by combining all 10 Criteria, maximum score obtained was 77.2%, lowest was 37.96%. Ranking is from 1 (highest) to 64 (lowest)

This PCI index has only been used as a additional “tool” in the entire process to compare the relative merits of the various cities and to understand their potential ability to provide good governance and possible capacity to implement change.

3.3.3 NGO Presence

The NGO Resource Center in Hanoi maintains a register of all NGOs, their location by Province, budgets and programs in Vietnam.⁵ The table below shows the number of NGOs present in the Province that corresponds to the potential city as at 2007 (Table 5). Full NGO details by province are contained in Appendix C.

Table 5 NGO Presence by Province, 2007

City	NGO's Present
Quy Nhon	13
Phan Thiet	19
Can Tho	20
Dong Hoi	21
Hai Phong	30
Da Nang	38
Hue	48
Ho Chi Minh City	62

NGO by Province is a good indicator of international activity. It is also useful in mapping non government stakeholders that could be of interest to any Initiative. The poorer provinces that contain the cities of Quy Nhon and Phan Thiet have relatively less NGOs present within them, while the provinces that contain Da Nang, Hue and Ho Chi Minh City have the most. Stakeholder feedback by NGOs working in Quy Nhon and Phan Thiet suggested that areas with less NGO presence could potentially be better due to the lack of competing funds and interest. The NGO Directory does not differentiate NGO presence at the city level, so while

⁵ Vietnam INGO Directory 2007, NGO Resource Center

Hai Phong, Da Nang and Hue all record higher numbers of NGOs, it does not necessarily mean that this trend is reflected at the city level.

3.4 Iteration (Final Phase I list)

3.4.1 Proposed Shortlisted Cities

The shortlisting of cities was based upon stakeholder engagement and literature review. The aim of the process was to refine eight potential cities (including Ho Chi Minh) to three candidate cities that would be targeted during the Phase 1 CAP scoping exercise. The city selection process was tailored to fit the program time constraints of Phase I and the results indicates clear trends in the character of each city. Based on anecdotal evidence and the PCI index, three cities were recommended for deeper city level engagement for the remainder of Phase I. These were:

1. Can Tho;
2. Hue; and
3. Quy Nhon.

Each is described in Table 6.

Table 6 Recommended Candidate Cities

City	Reason for Recommendation
Can Tho	High exposure, good government and academic capacity, favorable rating under PCI, consistent recommendation from stakeholders.
Hue	High exposure, good government and academic capacity, favorable rating under PCI, consistent recommendation from stakeholders.
Quy Nhon	High exposure, good government capacity, potentially higher reception to external involvement due to lack of resources, very favorable rating under PCI.

The excluded cities are presented below together with the reasons as to why they were excluded (Table 7).

Table 7 Excluded Cities

City	Reason for Exclusions
Ho Chi Minh City	Large population size, current level of committed investment and capacity of City Government.
Da Nang	Relatively less exposure than other cities and the significant levels of investment within the city.
Dong Hoi	Ability and capacity of the city Government lacking, low rating under PCI.
Phan Thiet	Lack of stakeholder knowledge, average rating under PCI.
Hai Phong	Population size, governance, significant levels of investment within the city and average rating under PCI.

3.4.2 Other Potential City (Da Nang)

During the process of selecting the final list of cities it has been considered that Da Nang could still be selected as a city for further engagement.

In particular its good governance and well developed city structure could form a strong reason to consider the city for the later stages when replication is considered.

4 Method of Engagement

4.1 Overview – What, Who and How

4.1.1 Approach

The approach for investigating the enabling environment and level of vulnerability in each of the three shortlisted cities was:

- Engagement of a local partner to better leverage existing networks and access the formal and informal institutions, which was considered essential in the unique cultural context of Vietnam;
- Extensive in country stakeholder engagement at national, provincial and city level, including re-engagement of previous stakeholders;
- Site visits to each city; and
- Review of available literature and data.

4.1.2 Local Vietnam Partner

A series of meetings were undertaken from 9th to 13th of June 2008 with potential country partners recommended by various stakeholders both internationally and within Vietnam. The potential partners included consulting groups from within MONRE linked with international NGOs working in the area of climate change, or a number of local or foreign individuals working as independent consultants within Vietnam. After the week of meetings, the preferred candidate Dr Bach Tan Sinh was identified and engaged as a partner to Arup. Dr Sinh's team comprised the following members:

1. Dr Bach Tan Sinh, National Institute for Science and Technology Policy and Strategy Studies, Team Leader;
2. Dr Tran Mai Kien, Vietnam National Institute of Meteorology, Hydrology and Environment, Team member;
3. Tran Van Giai Phong, Kyoto University, Japan, Team member;
4. Dr Vu Canh Toan, National Institute for Science and Technology Policy and Strategy Studies, Team member.

The team provided significant and valuable input and advice during the study.

4.1.3 Stakeholder Discussions and City Reconnaissance

A number of in country visits were undertaken including:

- Week of May 5th - Preliminary scoping and stakeholder engagement;
- Week of 9th of June – Stakeholder engagement and potential in country partner interview;
- Week of 14th of July – City Visits, two days per city at Hue, Can Tho and Quy Nhon;
- Week of 18th of August – Stakeholder engagement and follow up city level visits.

The visits were mostly used to meet with local stakeholders and/or visit the cities themselves.

4.1.4 Method of Engagement

Two main methods were used to engage with stakeholders. Meetings with National level Ministries, NGOs or Donor organisations were usually undertaken in an informal one on one setting.

Meetings with Government officials at the city level were undertaken in a half day workshop setting as it was far more efficient to gather a group in one room, rather than meet each individually. In some cases, representatives from Academia, Civil society or NGOs were

present. Usually however, NGOs were met on an individual basis. Workshops were always undertaken in the same manner:

- A brief opening introduction thanking the participants for the time, highlighting the ACCCRN Initiative, its scope, focus, timing of phases and hopeful outcomes. It was always highlighted clearly at the beginning of the workshop that the Initiative was currently in the earliest of Phases, and that there was no certainty that the city or even Vietnam would be selected as a suitable location for the Initiative. This message was reemphasised throughout the workshop if necessary;
- A free discussion period where Government officials could discuss climate change as it affected them, or the roles and responsibilities of their own department within the city. This period usually comprised the bulk of the workshop and once underway, participants were always willing to talk and share their perspectives. By listening to this feedback, a significant amount of information could be gathered, particularly about the impacts, exposure, awareness and vulnerabilities. Where additional information was required, questions would be asked.
- Workshop close.

4.2 Key challenges and blockages

A number of key challenges were faced in Vietnam that included the following:

1. **Timing** - Attempting to balance two separate countries with vastly different cultures, governance, and vulnerabilities was very challenging. The change in scope with regard to the potential candidate cities and the increase in numbers to be included compounded the problem making it very difficult to plan a project program that fitted the resources and timing available. Similarly planning a program around two cities which increased to eight before settling at three also made project planning difficult.
2. **Experience in Climate Adaptation** – The area of Climate Adaptation and Resilience is a developing subject and one of the main challenges was to become familiar with the subject to sufficient detail to engage knowledgably with local government and other stakeholders.
3. **Cultural Barriers** - Moving into Vietnam “cold” was a key challenge that was highlighted during the first visit in early May. Even though all of the Ove Arup Hong Kong project team has significant experience working in Asia, trying to get access to Vietnamese Government officials in particular is very difficult if it is approached in the standard western concept. There are very specific local rules and norms that need to be followed. However, this challenge was not really a major problem once it was identified and engagement of the local partner effectively overcame it.
4. **Stakeholder Expectations** - This was not so much of a challenge as an observation. Uncertainty around a program or project will always exist at its beginning. The challenge was trying to connect with stakeholders in a meaningful way, without raising expectations yet still overcome the overall lack of certainty as to whether a program would be initiated or not.

4.3 What we would have done differently

If the whole process was to be repeated, with the benefit of hindsight a number of strategies could be implemented to ensure a more streamlined process.

1. **Timing** - To overcome the problems faced with timing, two key steps would have helped. The first would have been to have clearer definition at the beginning that the scope of work in the brief was not necessarily fixed and that significant changes could be envisaged. The second point would have been to have focused on one country only as both countries (the other being Thailand) were under the same shifting scope and neither could be planned with certainty. Juggling with one country is a challenge, but

juggling scope changes with respect to two countries is something far more difficult to deal with. Greater allowance in the programme as well as budget could be considered in the overall project plan to account for the uncertainty in the project tasks and scope.

2. **Local Partner** - This project could not have been delivered with the depth of understanding it has without the involvement of the local partner. The partnership between an international and local organisation worked very well in that both parties have strengths and weaknesses that can be used to complement the other. Engagement of a local partner from the beginning of the project is critical. It is important to ensure that the partner is already engaged in climate related work at a high and local level to improve engagement and also to ensure quicker delivery of the tasks required.

5 City Overview – Hue City, Thua Thien Province

5.1 Introduction

Hue City is the capital and Provincial level City of Thua Thien - Hue Province. It is situated in central Vietnam in the Huong River Basin and along the banks of the Huong River (Figure 11). Hue occupies an area of approximately 71km² and contains a population of around 340, 000. The population density of Hue in 2005 was 4,595 people per km².

Hue is regarded as the cultural capital of Vietnam and was the former national capital until 1945. It is famous for its cultural relics and architecture and is listed under UNESCO's World Heritage Sites. Hue contains 27 administrative divisions including 24 urban wards and 3 rural communes.



Figure 11 : Hue City

5.2 Social – Economic Characteristics

In 2004 Thua Thien Hue maintained a robust economic growth rate, with industrial production increasing 15.5 percent from 2003. GDP growth rate was recorded at 9.6 percent during the period 2001 to 2005, and is targeted for 12 to 13 percent during the period 2006 to 2010. GDP per capita averaged over the period 2001 to 2005 was US\$580. Average foreign investment during the same period was around US\$857 Million.

The average population growth rate averaged 1.33 percent during 2001 to 2005 while the rate of poor households was 10 percent in 2005. Middle school education, electricity and fresh water access were all reasonably high (Table 8).

Table 8 Thua Thien Hue Province general Socio Economic Indicators (2001 - 2005)

Main general indicators	2005	2001 – 2005 (average)
Gross domestic product (GDP) – Growth	8 - 9%	9.6%
- Gross output of investment and construction (% of total)	14 - 15%	16.1%
- Gross output of Agriculture - Forestry – Fishery (% of total)	3.5 - 4%	8.7%
- Gross output of Services (% of total)	7 - 8%	9.2%
GDP per capita	550 - 600 USD	580 USD
Turnover of tourism (% of total)	20%	23.1%
Gross output of cereals for grain per year	220 thousand tons	230 thousand tons
Exported value	55 - 60 Mill USD	57 Mill USD
Total of investment general	12,000 -12,500 bill dong	13,712 bill dong
Natural population growth rate	1.4%	1.33%
Compulsory education (Middle)	100% communes, towns	150/150 communes, towns
Rate of children under 5 age	20-23%	23%
Rate of household electricity use	90%	95%
Rate of farming household used fresh water	70%	68%
Number of employed persons	10 -12 thousand persons	14 thousand persons
Rate of poor house hold	10%	7.5%

Source: Thua Thien Hue Statistical book 2006

5.3 Environmental Characteristics

5.3.1 Climate

Hue is located in the monsoon region characterised by a short, intense rainy seasons and a prolonged dry season for the remainder of the year. The rainy season occurs from August to December with total rainfall around 1,850mm, accounting for around 65 percent of total annual rainfall, with October typically the wettest month. The maximum 3-day rainfall on record is 600 to 1,000mm. The area is subjected to extreme weather events on a yearly basis including typhoons and tropical cyclones.

The Huong River basin has the highest rainfall in Vietnam, recording about 2500mm in coastal areas and 3500mm in the upper regions. Hue can receive up to 3 meters of rainfall annually. The topography of the basin changes rapidly from higher up stream areas in the west to lower coastal plain areas in the east with little transition area. This topography characteristic generates significant runoff in the rainy season leading to large floods and wide spread inundation (Do 2000).

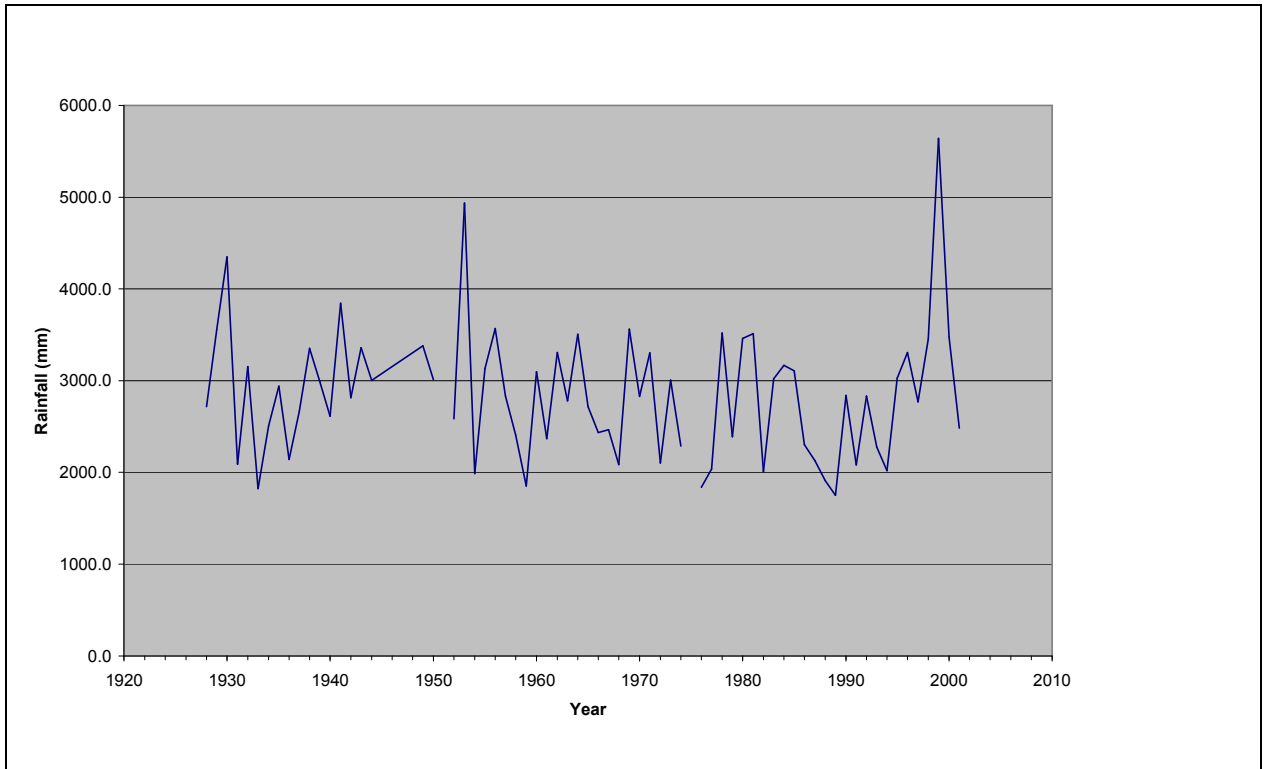


Figure 12 Annual Average Rainfall in Hue City, Hue Monitoring Station (1928 - 2001)

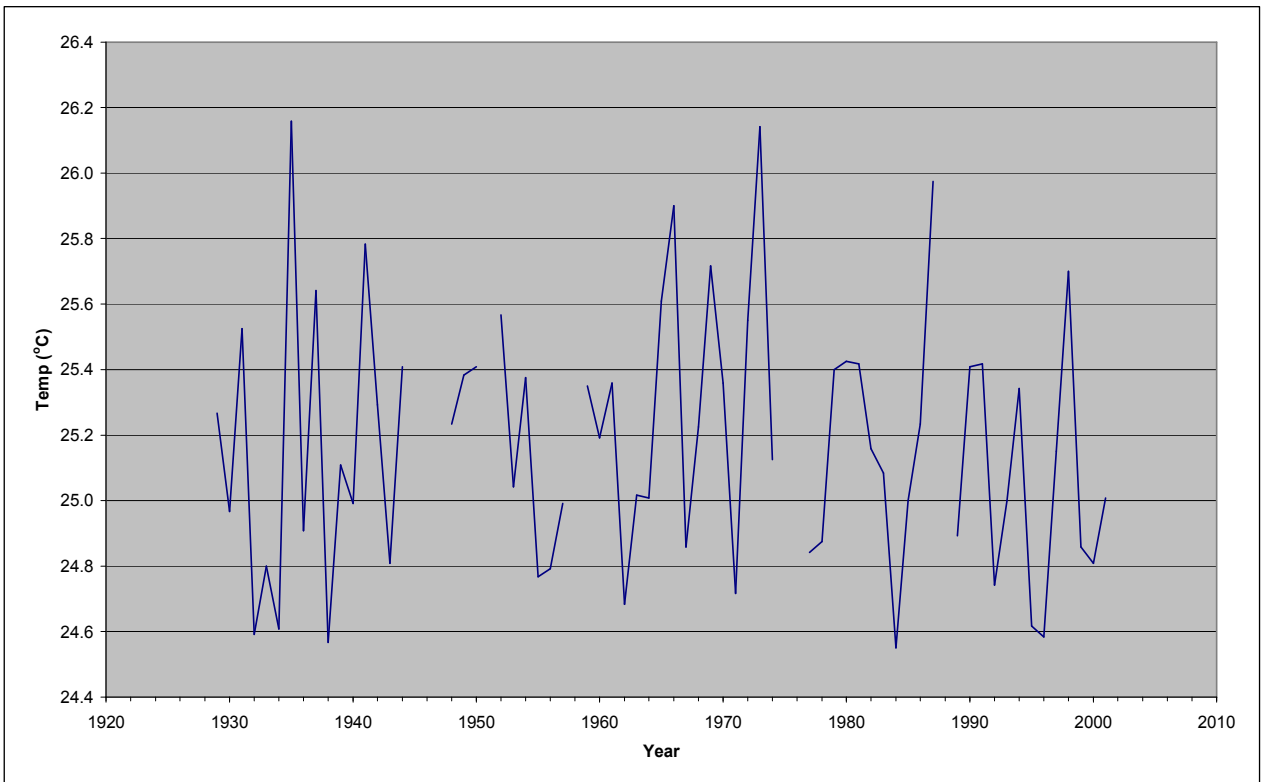


Figure 13 Average Annual Temp, Hue City (1928 - 2001)

5.3.2 Environmental Condition

Over the last few decades, the natural forests in the upland areas of the basin have been seriously degraded from uncontrolled logging, use of timber for construction and fuel, and the spraying of defoliant during the Vietnam War. The removal of the natural vegetation has exacerbated potential flood risk.

5.4 Climate Risk Overview

The key impact to Hue is flooding driven by extreme weather events such as typhoons and storm surge. Vietnam operates a system of flood alarm levels which are described in Table 9.

Table 9 Vietnamese Flood Level Alarms

Warning level	Description
Alarm Level I	Possible flood condition - River water level is high; threat to low height embankments; flooding of very low lying areas; infrastructure safe.
Alarm Level II	Dangerous flood condition - Flood plane inundation expected; towns and cities still generally protected by flood defenses; high velocity river flows pose danger of bank and dyke erosion; bridge foundations at risk from scour; infrastructure generally safe.
Alarm Level III	Very dangerous flood condition - All low lying areas submerged, including low lying areas in cities and towns; safety of river protection dykes in jeopardy; damage to infrastructure begins.
Alarm Level III +	Emergency flood condition - General and wide spread uncontrollable flooding; dyke failure a certainty and probably uncontrollable; damage to infrastructure severe.

Source: Central Committee for Flood and Storm Control (CCFSC)

Typhoons and tropical depressions cause large floods on the Huong River. Cold air surges combined with typhoon, or low pressure systems are capable of causing floods above Alarm Level 3. Flooding usually occurs in the rainy season, especially during the months of September to November. The following floods have been recorded:

- In May 1989, flooding in Hue was greater than Alarm Level 3;
- In 1990, five tropical storms caused flooding above Alarm Level 3, even though none of the storms entered Thua Thien Hue directly.

In the past few decades, the frequency and severity of disasters has increased significantly in Thua Thien Hue Province. Historical records from 1804 to 1945 indicate there were only 38 floods and typhoons. By contrast, in the 25 year period from 1975 to 2000, there were 41 disasters with one storm, eighteen floods, and twenty-two storm-floods (Do 2000). Severe disasters also occurred recently, including severe flooding in 1983, a destructive storm in 1985, and the historical flood in 1999. There is also a shift in the period of when disasters tend to occur. Historically September to January were the disaster prone months however there are more extreme events occurring earlier from August to December.

At the local level, the frequency of floods has increased significantly with 7 floods recorded in 1996, and 6 floods in 1998 (PCFSC 2000). This corresponds to increased precipitation in the last ten years, particularly the maximum and monthly maximum precipitation. For example, the recorded rainfall on the 2nd of November, 1999 was 978mm, compared to the total rainfall in the same month of 2451.7mm which was the highest on record (IMH 2006). The observation indicates the unpredictability of disasters in the region then previously.

5.5 Vulnerability Overview

Severe storms and flooding causes significant socio-economical losses, livelihood and property. Damage is also caused to World Heritage areas.

The emergence and sustained political drive to generate economic development means that more assets are at risk through unsustainable use of natural resources. This is exacerbated by a trend towards migration of non urban populations into the city seeking better employment opportunities, leading to the development of larger settlements in vulnerable areas such as along the banks of the Huong River. A holistic disaster risk management program of the region requires substantial understanding of these issues and other problems specific to the region including:

- the nature of the region and disaster;
- the link between disasters, natural resources and human activities; and
- the roles of stakeholders at local and national levels in disaster and environment management.

Based on past experiences of the Provincial Committee for Flood and Storm Control (CFSC), it is able to identify risk areas and vulnerable people. The main risk areas in Hue and the surrounding areas are:

- the commune/districts along the Huong River and Hue lagoon; and
- the communes in mountainous districts (A Luoi, Nam Dong districts).

Erosions along rivers and land slides in mountainous and remote areas are also areas of concern.

The populations with greatest vulnerability in Hue are those living along the Huong River and Hue Lagoon (See photographs below). The Huong River is the main source of irrigation for agriculture, aquaculture, and provides water supply for industry, energy generation, municipal and civil use, and natural resources, ecosystems and the environment. Most of the people in the Huong River basin are living near the poverty line and their livelihoods strongly depend on its water. In the Huong River basin there is a unique ecological and economical site – Tam Giang–Cau Hai lagoons. This is the largest and most complicated lagoon system in Vietnam, which is very sensitive to climate change effects.



	
<p>Photograph 3 Rice farms and communes along Huong River</p>	<p>Photograph 4 Resettled communities from Hai Lagoon</p>

There is a higher concentration of the population in the Huong River plain, most of which is cultivated rice fields. Local livelihoods are strongly dependant on effective water resource management. Water demand for agriculture, aquaculture, industry and household use is very high, yet even though the Huong River is a large water source, its flow characteristics throughout the year is very unequal. Very high discharge in the rainy season causes flooding and inundation, while low flows in the dry season often causes water supply scarcity, increases water pollution, increases saline intrusion, and leads to ecological and wild life degradation. Due to these factors, the water resource of the Huong River basin is of high risk to climate change impacts.

5.6 Governance, Disaster Management and Adaptation

It is useful to provide an overview of disaster management as it is closely linked to dealing with the impacts associated with climate change. The following section describes briefly and in general the planning and institutional framework for Disaster Management in Hue. A detailed description is included in Appendix D. This framework is in general mirrored in Can Tho and Quy Nhon.

5.6.1 Governance

Hue is a city under the administration of Thua Thien Hue province and all planning related to disasters and climate risk reduction activities of the city follow the planning of the province.

The Thua Thien Hue Provincial Committee for Flood & Storm Control and Search & Rescue is the focal provincial agency, established under the decision of the People’s Committee of Thua Thien Hue Province. It is responsible for disaster management and search and rescue activities. Flood and storm control is the responsibility of the technical staff in the Department of Agriculture and Rural Development (DARD) while search and rescue is the responsibility of the provincial defence department. This helps to streamline the leadership and facilitate a more effective decision making process in case of emergencies. There are two main provincial level entities that are actively involved in undertaking disaster management and climate change adaptation related activities:

- The Provincial Committee for Flood and Strom Control (PCFCS) and;
- The Provincial Defence Department.

The approach for disaster management is listed below (Table 10).

Table 10 Disaster Management Approach if PCFSC

Stage of Disaster	Task
Before	Steer sectors and localities to build flood and storm mitigation works; and enhance community awareness
	Strengthen the PCFSC by improving operational regulations and identifying solutions and responsibilities when disasters occur.
During	Report and advice to the chairman of the People's Committee on the disaster situations and how to cope with specific disasters.
	Manage disaster mitigations work in accordance with designed capacity and minimize disaster impacts.
	Mobilise resources and steer departments, sectors and localities, in coping with disasters in order to minimise loss of people's lives and property
After	Report to the chairman of the People's Committee on the disaster consequences and response needs and advise her/him in providing assistance to communes and villages with weak local coping capacity
	Steer relevant departments, sectors and localities to implement recovery and review and draw lesson-learned for future implementation
	Manage disaster mitigation works and return their activities to normal status in order to cope with the next potential disaster

Early warning systems include land lines, mobile phones, and faxes supported by generators in case of power outages. For forecasting, the Province has 10 gauging stations, 4 of which are automatic, installed in the most critical areas to measure the hydro-metrological conditions and transfer information to the provincial CFSC. The staff members of the CFSC are mainly responsible for gathering as much information as possible from other sources including the CCFSC correspondence, website, daily weather forecast on Vietnam TV and Radio, local TV and radio.

The province has also built 15 "typhoon warning poles" along its coastline, using different colour bands to provide warnings to the people living near the ocean and the fishermen. The Province has also built around 100 flood warning poles to measure flood water and to give warning messages to the people living near the rivers or in low land/flood prone areas.

At the provincial level, warning messages received from the CCFSC are passed down to the districts which in turn are passed to the communes. At commune level, loudspeakers are used to disseminate information and warning messages. Recently, more than 750 fishermen received FM radio receivers from the project funded by UNDP/USAID. This was aimed to help fishermen receive daily weather forecasts and early warning messages when at sea.

The main institutions involved in disaster management and planning are listed below in Table 11.

Table 11 Disaster Management Organisations and Institutions

Phases	Main Organisations and Institutions
Disaster Planning	CFSC, Office of CFSC
Mapping	Office of CFSC: flood, typhoon; DARD: drought, forest fire
Forecasting	Meteorology: flood typhoon, DARD: drought, forest fire
Warning	CFSC, Office of CFSC, central and local Radio & Television
Preparedness	Office of CFSC: flood, typhoon; DARD: drought, forest fire
Response	CFSC, office of CFSC and relevant bodies
Relief	Aid Coordinating Committee including: Fatherland Front, Finance, Red Cross, Social Welfare
Reconstruction	People's Committee, and relevant bodies
Recovery	People's Committee and relevant bodies

5.7 Stakeholder Analysis and Mapping

5.7.1 Stakeholder Groups

There are three main Stakeholder groups present in Hue:

- Government (including the unions such as women, youth and farmers unions);
- NGO;
- University.

As a centrally controlled political system, the government departments are similarly replicated across provinces in the structure described previously. Hue has an excellent university that is highly regarded both within Vietnam and internationally. There are also numerous NGOs working in Thua Thien Province (See Appendix C)

5.7.2 Stakeholder Meeting Results

In addition to the stakeholder discussions undertaken at the national level with Government Ministries, NGO and Donor, (Table 2), the following Government stakeholders were engaged with during a series of workshops held on the week of 14th of July 2008. The Govt departments were selected as the main representatives who may have an interaction with climate change in the city (Table 12).

Table 12 Stakeholders Consulted - Hue

Name	Position - Organization	Position
Nam DO	Department of Science and Technology (DOST)	Director
Kim Thanh TRAN	Department of Agriculture and rural development	Deputy Director
Huu Minh LE	Department of Culture, Sports and Tourism	Deputy Director
Hong Khoi PHAN	People's Committee of Hue city	Representative
Van Ty LE	Department of Science and Technology Management Division – DOST	Director
Huu Thien PHUNG	Department of Construction	Representative

Name	Position - Organization	Position
Viet NGUYEN	Technical expert	Consultant
Nhu Tuan DANG	Department of Natural Resources and Environment	Deputy Director
Van Hung NGUYEN	Centre for Hydrometeorological Forecasting of Hue city	Deputy Director

Discussions with Stakeholders attempted to elicit feedback on the key themes of:

- Exposure and Vulnerability – who and where the vulnerable were located and what were the key impacts facing the city;
- Governance – the awareness, willingness, openness, transparency and capacity of the government;
- Projects – climate change or other projects that may have been completed in the city, to gauge the level of capability to enable project completion, or their relative interest in future projects given current activity; and
- Actor Diversity – who other players in the city may be which was used as an indicator of potential partners, champions and also a barometer of current activity.

These themes reflected the criteria developed at Workshop 1 in Hong Kong and listed in Appendix A. Table 13 presents the perceptions of the city, based on the workshop in the city, and discussions with other institutions both internal and external to the city. All results are presented relative to the other two cities of Can Tho and Quy Nhon.

Table 13 Stakeholder Analysis Results - Hue

Criteria	Rank	Comment
Exposure and Awareness		
Exposure	High	Highest of the three cities (and probably highest in Vietnam).
Vulnerability	High	The key vulnerable districts impacted are those poor communities that lie along the Huong River and the fisherman living near Hue Lagoon.
Impacts	High	Key impacts are flooding and severe storms (Hue lies in the direct path of the typhoons). Lesser impacts mentioned are erosion along river and lagoon banks and land slides in the mountainous areas behind the city.
Awareness	Low to medium	<p>As per other areas in Vietnam (and globally), people in Hue are very aware of the direct impacts facing them on an annual basis – storms and flooding. Their daily lives revolve around dealing with annual flooding, they know the months that storms and floods will occur and disaster preparedness and planning is well developed to deal with the impacts. Their ability to cope is very high.</p> <p>However, it is the longer term impacts of climate change with respect to sea level rise and possible increasing intensity and frequency of severe storms with which they are uncertain. Within Vietnam at the national and provincial levels are a number of very knowledgeable experts, but the level of awareness decreases further down the government structure.</p> <p>A comment made by Government officials during meetings was that they were uncertain just how bad floods could become in the future. While they could require local residents and businesses to raise the heights of buildings, it was unclear just how high they should be raised. Too high and the cost</p>

Criteria	Rank	Comment
		would be too much and residents and businesses would complain, too low and the cost would be wasted as the business or home was lost anyway. It should be remembered that scenario analysis and impact assessment are still yet to be undertaken at the National Level and this level of uncertainty reflects the current position of awareness at the national level.
Planning	Low to Medium	Urban planning does not explicitly allow for climate change due to uncertainty of impact. Urban planning does require buildings to be of a certain height above recent historical flood levels and a minimum number of establishments in flood prone areas. However this would not be adequate to capture longer term trends, especially the larger storm events which occur rarely but may be increasing in intensity and frequency.
Urbanisation	High	As with many areas in Vietnam, urbanization is occurring rapidly. Hue faces similar urbanization issues to Quy Nhon and Can Tho, especially the outer suburban areas towards Hue Lagoon and along the Huong River where poorer communities are located. Many of these communities are very simple with only basic housing. Similar to other areas in Vietnam it faces problems of migration to the city by rural workers looking for employment opportunities, especially with the national level directive to pursue economic growth.
Enabling Environment		
Governance	Med	Stakeholder meetings were held with senior representatives from numerous Government departments and the perception from these meetings was that the governance in the city was good. However comments were made by both MONRE and NGO that the level of foreign interest in Hue currently was very high and questioned the interest of another program implemented in the city. Similarly, some NGO commented on the bureaucratic process in the city suggesting it was less efficient than Quy Nhon and Can Tho. The city is ranked similar to Can Tho under the Provincial Competitiveness Index 2007.
Autonomy	High	Hue is one of the five Provincial level cities in Vietnam.
Priority of Climate Change	Low to Medium	There is a degree of urgency to deal with floods, but little yet in incorporating climate change impacts into city urban planning. It is anticipated that this will change with the development and approval of the NTP, especially with the requirement for each Province to prepare action plans. The key priority, as in all cities in Vietnam, is economic growth.
Capacity	Low to Medium	Stakeholder feedback during the meetings with Government officials consistently mentioned the absence of technical expertise to deal with climate change and how to incorporate its effect in urban planning. This is expected to change somewhat with the requirement under the NTP for each Province to develop its own action plan. There is also significant activity already in the city, particularly following recent floods. This could lower their relative interest in the Initiative.
Willingness	High	All parties from the Government through to the University were highly willing to be involved in the Initiative.

Criteria	Rank	Comment
Transparency	High	<p>The response from Government stakeholders during the meeting regarding transparency was positive:</p> <ul style="list-style-type: none"> ▪ Any program has the option of entering and being approved by the Government as either an NGO or Overseas Development Assistance (ODA) program; ▪ The project Proposal must clearly specify the implementing agency, any local partners, the times lines and objectives; ▪ Financial management of the Project (if it is and ODA with Government participation) follows the regulations of the City Government; ▪ It is possible to specify any special requirements to ensure transparency including external third party auditors and it was reported that this has often been a requirement on previous ODA.
Multiplicity of Actors		
Foreign actors	High	There are a numerous NGOs active in Hue and the Province (Appendix C). Hue would rate the highest of the three cities.
Academic	High	Hue has an excellent local university with a good reputation both nationally and internationally. It contains science, environmental science and sociology faculties.
Champions		<p>There are a number of potential areas that could be investigated further for a champion depending on the nature of Initiative (Overseas Development Assistance or NGO). Good stating points would be either:</p> <ul style="list-style-type: none"> ▪ The university; ▪ Partnering or supporting one of the many NGOs already present in the city; ▪ The Civil Society (Women Union, Farmers Union, Youth Union) could be used, especially for information dissemination as they have linkages into all levels of Vietnamese society.

5.8 Policy and Initiatives

Hue is a city under the administration of Thua Thien Hue Province and as such all planning frameworks related to disaster preparedness and climate risk reduction follows the planning at the provincial level. Policies for climate change preparedness as discussed previously are being prepared at the national level before being applied locally.

5.8.1 Risk, hazard and vulnerability identification and planning

A flood inundation map was developed for Hue after the floods of 1999 at a scale of 1:50,000 and this map is available for broad application in flood risk management. There is good general knowledge about localised risk and hazard management, in particular flooding which occurs regularly. However, there is limited local ability or experience in translating this to maps or other systems (e.g. GIS) where statistical tools can be used to incorporate this local knowledge in to long term hazard, risk and vulnerability identification.

Every year, the disaster management planning process (mainly flood and storm control) takes place at the commune, district and provincial level, which is mainly prepared by the leaders without community participation. Once the plan is approved, the commune authorities disseminate information and decisions to the people before the flood and storm season on loudspeakers or through the village leader during community meeting.

Information support systems such as GIS are mainly used and developed at the national level for use by the PCFSC. The PCFSC then provides advice and guidance to the district and commune level.

5.8.2 Environment and Disaster Management Project (EHSEDM)

Many international donors are working in collaboration with the Government of Vietnam to implement natural disaster mitigation and preparedness projects in order to support sustainable development in Central Vietnam. It is within this strategy, that the Enhancing Human Security, the Environment and Disaster Management Project, (EHSEDM) was implemented in Phu Loc district, Thua Thien Hue province. The project focused on the impacts of environmental changes (in the form of climate change impacts) on the community, from natural disasters such as floods and cyclones. Specific impacts to livelihoods (mainly agriculture and aquaculture) and living conditions (housing, health, and education) were analyzed. During the project period, many lessons were learned. It is proposed to replicate project components in other vulnerable districts in Thua Thien Hue province in order to create a model of Community Based Climate Change Adaptation to be used in other parts of Vietnam. Developing and implementing climate change adaptation pilot models in most vulnerable locations using participatory tools to gather specific local information had significantly increased the level of disaster awareness among local villagers and authorities. It also encouraged people to adopt the pro-active adaptation measures.

The overall aim of the project is to develop a Community Based Climate Change Adaptation Model, which can be applied to different socio-economic conditions. The goal of the proposed project is to enhance human security in central Vietnam cope with climate change impacts such as floods and cyclones. Specific objectives are:

- To study and analyze the impact of climate change on communities and livelihoods in the district of Thua Thien Hue province;
- To undertake training and awareness raising programs at the village, commune and district levels;
- To initiate participatory planning processes at the village, commune and district levels;
- To implement demonstration sub-projects under safer village/commune/district plans;
- To monitor and evaluate the implementation process; and
- To develop a Community Based Climate Change Adaptation Model.

The project engaged community members in monitoring the construction, operation and maintenance of community-level infrastructure. Community members also had access to information on budgets and construction specifications demonstrating transparency and the importance of accountability in using resources allocated to investments in their locality. This approach enhanced the quality of construction and services, as well as promoted community ownership of the completed infrastructure works handed over to them.

5.8.3 Housing improvement to reduce vulnerability to climate-related hazards

The impact of larger storms is compounded at the grassroots level by various social and economic factors which have contributed to increased vulnerability of urban and rural communities. For example, the extremely poor, who live under very simple conditions are highly vulnerable due to their lack of access to physical, social, and financial infrastructure. The Government is attempting to alleviate this factor through its temporary houses replacement program. However residents who have made improvements to their housing condition often do so without clear guidance on appropriate construction standards for the storm and the cyclone risk relevant to the area. This includes construction of rooves that are too flat for the conditions.

Development Workshop has helped communities in Central Vietnam since 1999 to reduce their vulnerability to climate-related hazards, including winds, floods and tropical storms, and typhoons. With support from the European Commission, the Development Workshop

promotes the application of storm-resistant principles in existing and new housing in Central Vietnam. Typhoon Xangsane in October 2006 caused extensive damage to property but many families were quick to apply Development Workshop principles in their reconstruction work. The Thua Thien Hue provincial authorities issued a decision in October 2006 instructing local authorities and the population to apply the ten key storm-resistant construction principles introduced by Development Workshop. This initiative highlighted how effective disaster prevention needs to start at the community level, and that for projects to have a broad impact, families need both financial and technical assistance. Such support needs to be underpinned by the Government to have a real and large-scale impact. More information is found at www.dwf.org/vietnam/phongchongbao/index.htm.

6 City Overview – Can Tho city

6.1 Introduction

Can Tho City is located beside the western bank of the Hau River in the center of the Mekong River Delta. The city comprises an interlacing system of rivers and ditches with average attitude of 0.5 m to 1 m above sea level.⁶ It contains a natural area of 1,401 km² and a population of approximately 1,139,900. It is 75 km inland west from the South China Sea and 169 km from Ho Chi Minh City to the north. It borders the provinces of An Giang and Dong Thap in the north, Hau Giang in the south, Kien Giang in the west, Vinh Long and Dong Thap in the east. Located on the national highway 1A, Can Tho gives easy access to Ho Chi Minh City and other Mekong Delta provinces. Moreover, it is convenient for transportation to Cambodia by roads and waterways (Figure 14).

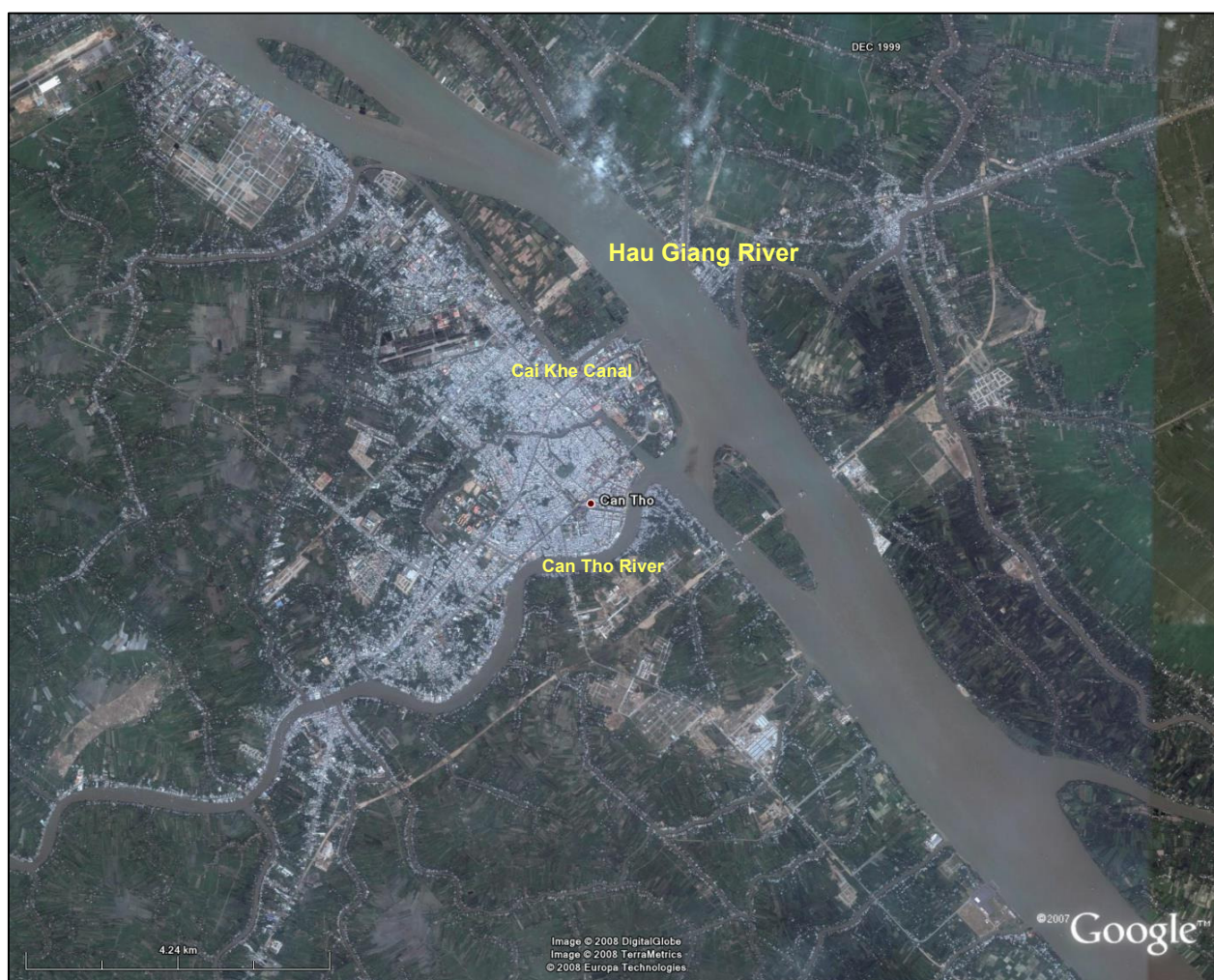


Figure 14 Can Tho City

6.2 Social – Economic Characteristics

Can Tho has eight administrative units consisting of four urban districts (Ninh Kieu, Binh Thuy, O Mon, and Cai Rang) and four rural districts (Phong Dien, Co Do, Thot Not, and Vinh Thanh). Ninh Kieu is the central district.

⁶ The Mekong River comprises one of the largest river systems not only in Asia but also in the world. It drains an area of 810,000 km² and links Lao, Cambodia, Thailand and Vietnam. It is the 11th-longest river in the world with an estimated length of 4,880 km, and an average flow of about 16,000m³/s. Minimum flows in the dry season are around 2,500 m³/s, while highest flow in the rainy season is around 40,000 m³/s.

Can Tho has become a city under the Central Administration since January 2004 and is the economic, commercial, financial, service, cultural, and science-technological center in the Mekong River Delta. Can Tho infrastructure includes a system of roads and water ways, an airport, a sea port, export processing industrial zones, telecommunications, banks, electricity supply stations, water supply system and new urban areas.

The local population in 2007 was about 1,159,000 people of which 557, 524 persons lived in rural area and 601,484 settled in urban areas. The population density is around 827 people per km². The rate of people working in agriculture, forestry and fishing is 63.9 percent and the remainder are employed in non-agricultural sectors.

GDP growth during the period 2005 and 2007 was a healthy 15.7 percent to 16.2 percent respectively. Official statistics indicate that GDP per capita has almost doubled from US\$596 in 2004 to US\$1,137 in 2007, far higher than either Hue or Quy Nhon.

Table 14 Can Tho Socio Economic Indicators (2004 - 2007)

Indicator	2004	2005	2006	2007
Average population (person)	1,127,765	1,137,269	1,147,067	1,159,000
Population density (person /km ²)	812	812	819	827
Males	553,586	558,752	564,068	571,166
Females	574,179	578,517	582,999	587,842
Urban	562,079	567,952	578,128	601,484
Rural	565,686	569,317	568,939	557,524
Rate of poor house hold			9.5%	8.5%
GDP (gross domestic product) (mill. Dongs)	11,744,924	14,277,746	17,974,325	210,775,74
GDP of Agriculture, Forestry and Fishing (%)	20.8 %	18.7%	17%	17%
GDP of Industry and construction (%)	38.4%	39.8%	39%	38%
GDP of services (%)	40.8%	41.5%	44%	45%
GDP growth rate		15.7%		16.2%
GDP per capita	596 USD	681 USD	955 USD	1,137 USD
Gross output of Agriculture, Forestry and Fishing	16.3%	14.7%	13.2%	
Gross output of Industry and construction	55.1%	56.9%	55.8%	
Gross output of services	28.60%	28.4%	31%	
Revenue of state budget (Bill. dongs)	2,061	2,902	3,714	
Expenditure of stage budget (Bill. dongs)	1,834	2,581	3,304	
Revenue of currency of state bank in area (bill. dongs)	28,061	41,130	46,463	

Indicator	2004	2005	2006	2007
Export in area (Mill. USD)	302	348	456	
Import in area (Mill. USD)	265	252	283	
Investment (Bill. dong)	4,089	7,350	9,730	
Of which				
- Building	2,311	4,047	3,607	
- Machinery	692	1,060	1,849	
Number of foreign direct investment projects licensed				
Number of projects	5	3	5	
Number of hospital beds (beds)	1,993	1,529	1,600	
Number of doctor /person	612	535	581	

Source: Statistical Office of Can Tho City, 2007

6.3 Environmental Characteristics

6.3.1 Climate

Annual sediments from the Mekong delta contribute to a fertile agricultural area in Can Tho. The city is located in the tropical temperate zone with a strong monsoon influence, sunny days, high rainfall and high humidity. The climate is divided into a rainy season lasting from May to November and a dry season from December to April. Average rainfall over the period Year 2000 to 2007 has ranged from 1,500mm to 1,911mm (Figure 15).

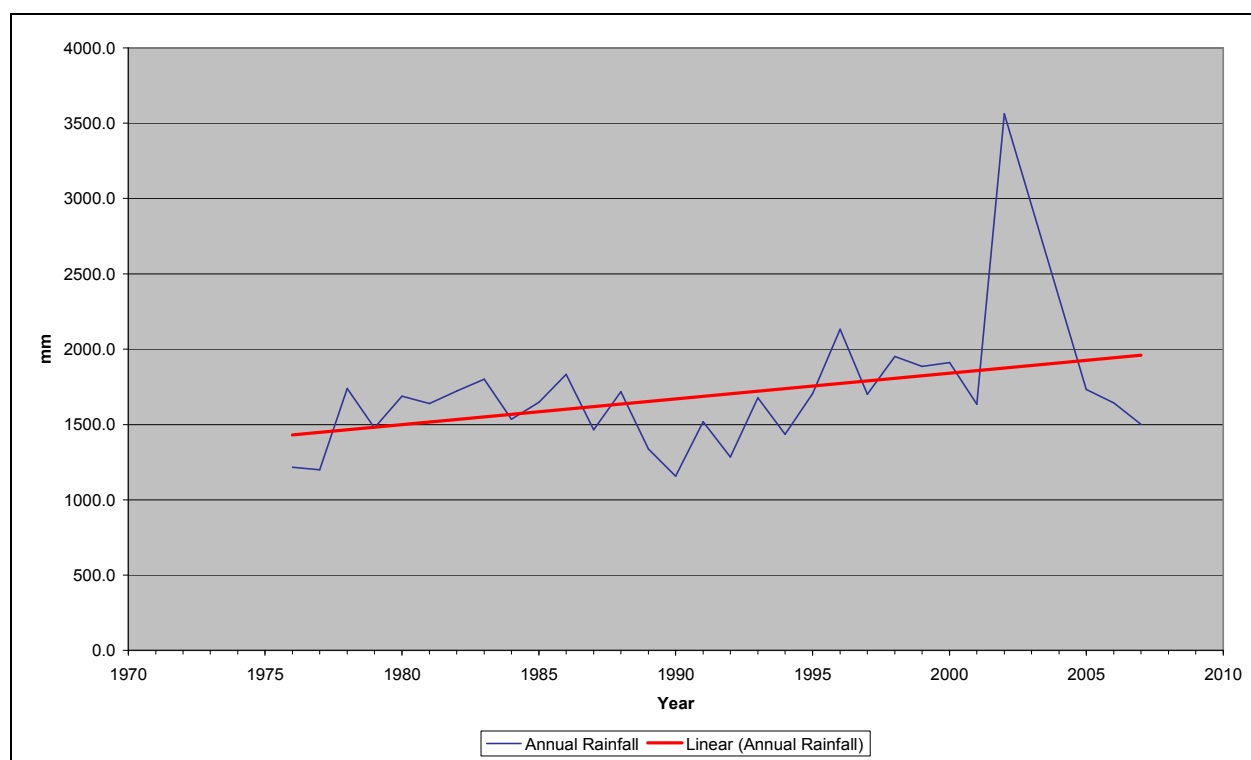


Figure 15 Average Annual Rainfall

(Source: Can Tho DONRE and Can Tho Statistical Office, 2007)

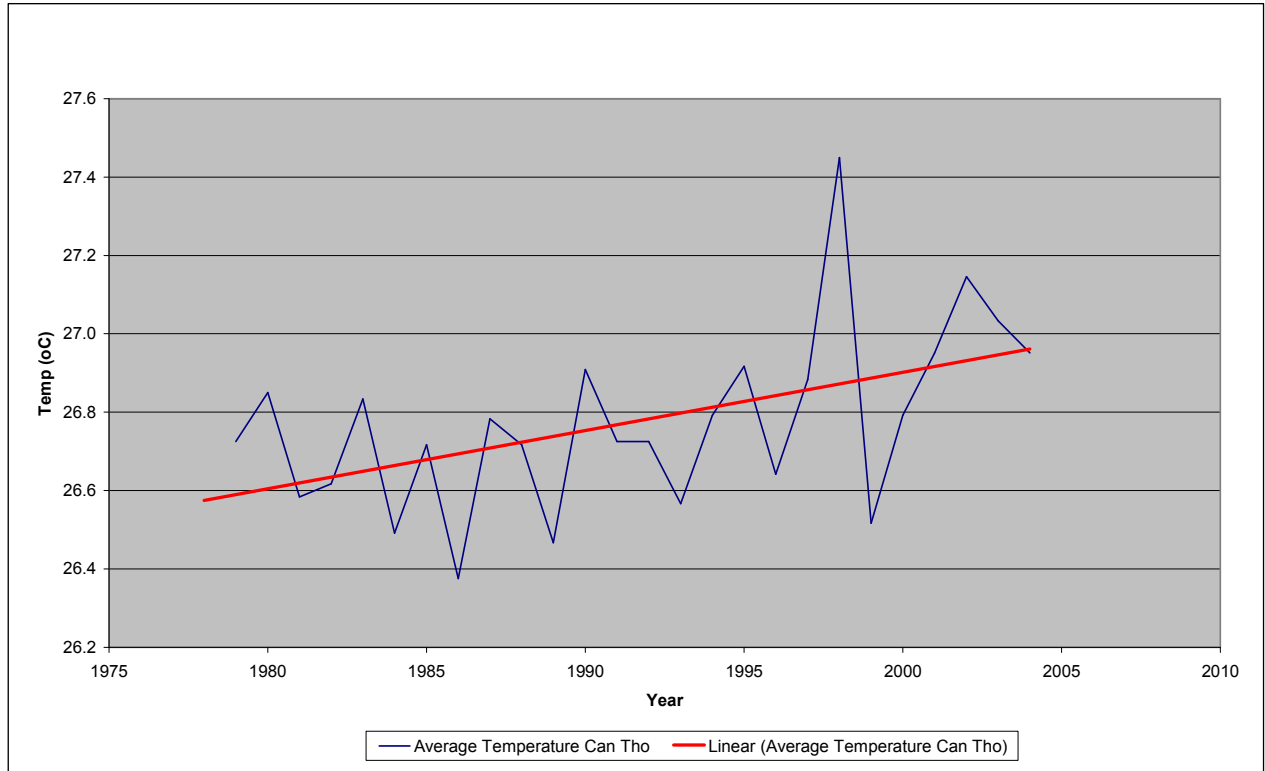


Figure 16 Average temperature in Can Tho city (1978 to 2005)

Average temperature in Can Tho is 27°C with a general increase in the period from Year 1978 to 2005 of 0.5°C and 0.2°C from 1960 to 2005 (Figure 16).

During the Year 2000 to 2007, total sunny hours varied between 2,196 hours and 2,290 hours with a monthly average of around 186 hours.

6.3.2 Environmental Condition

Water resources in Can Tho are influenced by the Mekong River and the South China Sea. The hydrology is determined by rainfall, upstream discharge and tidal fluctuations. During the rainy season from May to November, large parts of the delta become flooded, especially during August to November. During flood periods, the water depth in the paddy fields ranges from 0.3 to 3.0m. During the dry season, irrigation water is scarce because of the very low water discharge from the Mekong River and as a result, large parts of the coastal areas are affected by saline water intrusion (Can Tho DONRE 2008).

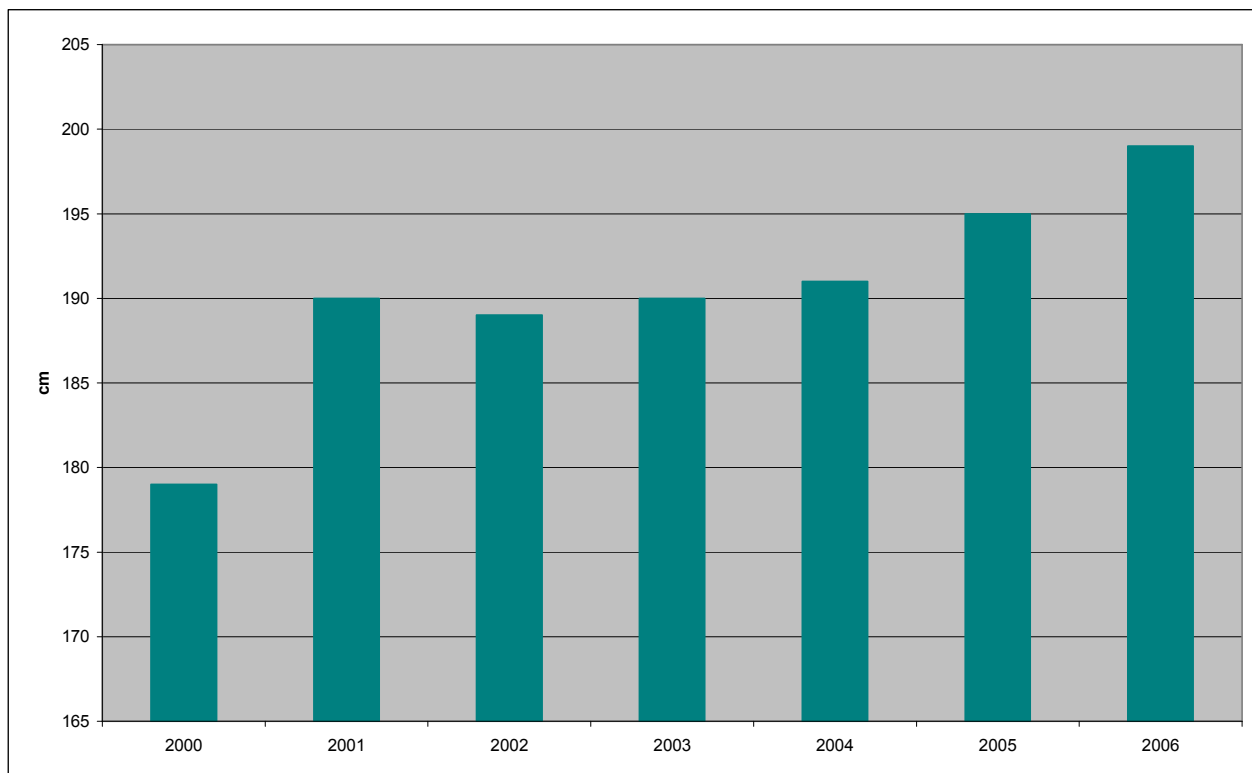


Figure 17 Mean highest Water Level at Hao River (cm)

(Source Can Tho DONRE 2008)

Can Tho is located along the Hau River where it discharges 200 billion m³ per year into the sea accounting for 41% of the total output of the Mekong river (Photograph 5). The Can Tho River is a freshwater river also located in Can Tho entering the Hau River at Ninh Kieu wharf. It not only provides water in the dry season and drainage in the rainy season but is also utilized for transport. From 2000 to 2006, Hau River water levels increased nearly 0.2m (Figure 17).

The Hau River is the main source for agriculture, aquaculture and provides water supply for industry, municipal and civil use. In the rainy season, the water flow of Hau River is typically abundant, however during recent years water availability has become scarce in the dry season. Can Tho requires 20,000m³ per day but the capacity of the river in the dry season is only 16,000m³. Due to the decrease of Hau's water level, sea water infiltrates quickly into the river when the seawater levels rise affecting water quality. Ground water is of good quality but it has been over exploited through unregulated extraction.

In 2007, the percentage of population with access to clean water was 75% in urban areas and 58% in the rural area. The objective of Can Tho government is to provide clean water for 80 to 85% of the population by 2010.

One of the main environmental issues in Can Tho is water pollution from agricultural and industrial chemicals and untreated domestic wastewater. Infrastructure for water supply and waste water is inadequate with wastewater discharged directly in small ditches that lead into the Hau River. The concentration of COD in the rivers of Can Tho City varies from 12.5 to 83.8 mg/l with an average of 30.7 mg/l exceeding the standard for water type A 3.07 times (Vietnamese standard –TCVN 5942-1995:<10mg/l) (Can Tho DONRE 2008).



Photograph 5 Hua River

6.4 Climate Risk Overview

Sea level rise, annual flooding from upstream flows in the Mekong River in the rainy season and saline intrusion in the dry season are identified as the key water related problems that limit the socio-economic development in the Delta.

Flooding in the Mekong Delta has both advantages and disadvantages and the Vietnamese Government actively seeks strategies for flood control planning to make full use of the advantages and limit the disadvantages. Construction of off stream storages attempts to capture flood waters during the wet season, limit flooding, and provide additional water supply capacity in the dry season. Full protection is a desired goal, but it may in turn create negative effects such as significant changes in water levels and flow regimes in the whole Mekong Delta. This could lead to hindering of sediment transport and trapping, acidity leaching, and fish production. Therefore close cooperation along the entire Mekong River, both domestically and internationally is necessary for effective flood control planning and development of mitigation strategies for climate change.

6.4.1 Storm and floods

In the flood season of 2007, the highest water level at Can Tho reached 2.05 to 2.10m above sea level. The ground surface inside Can Tho was reportedly raised in flood prone areas by 0.5m several years by the local government but now is inundated like its original situation. According to the World Bank's Report on "The Impact of Sea Level Rise on Developing Countries: a Comparative Analysis in 2050," more than 85 percent of the inland areas will be inundated by water if the sea level rises more 0.3m. If sea level rises more than m, the impacted area may be nearly 40,000km², of which Can Tho and some 17 million inhabitants could be affected by high tide.

Some of the largest and worst floods in recent memory impacted the Mekong Delta in 2000 and 2001, killing around 481 and 393 people and damaging 900,000 and 350,000 houses in each year respectively (Chaudry and Ruyschaert 2007).

The effect of the tropical storm Durian in December 2006 was severe. Can Tho was one of the eight provinces effected by this storm. The following data shows the scale of damage from this storm to the Mekong delta:

- 19 fatalities; 4 missing persons; 593 injured;
- Evacuated households 29,056; collapsed houses 41,095; severely damaged houses 121,066;
- Public health centres damaged 62;
- Industries damaged 625;
- Classrooms damaged 1,920; affected students 44,0257;
- Collapsed electrical poles 4,739; collapsed sub-stations 13; damaged telephone poles 715;
- Inundated paddy field 25,903 ha; damaged crops 2,339 ha; damaged orchard 82,203 ha;
- Irrigation systems eroded 4;
- Fishing vessels lost 105.

During the dry season in 2006, the water flow in the Hau River decreased to around 864 to 844m³/s in March and April. The total Mekong flow at this period was about 1700m³/s instead of 2500m³/s during normal periods. The water demands for rice cultivation in the Mekong delta is about 2500m³/s. Introduction of certain species of fish for farming such as Tra Fish (Cat Fish) requires even greater demands for water then rice production compounding the problem of water scarcity in the dry season (Vinh 2008).

6.4.2 Saline Intrusion

Saline intrusion is becoming an increasing problem in Can Tho during the dry season from December to May. It causes low yield in rice crop and damage to boat generators in the rivers and canals. Saline intrusion is one of the principal limiting factors in crop production and drinking water supply for domestic and industrial utilities. Almost all rice varieties, vegetables and crops do not live if the salinity in soil and water reaches to 0.4% or 4 gram per litre.

The Hau River water which typically records very low salinity levels close to the city recorded saline levels 12 km from the city normally found 30km away. (Figure 18).

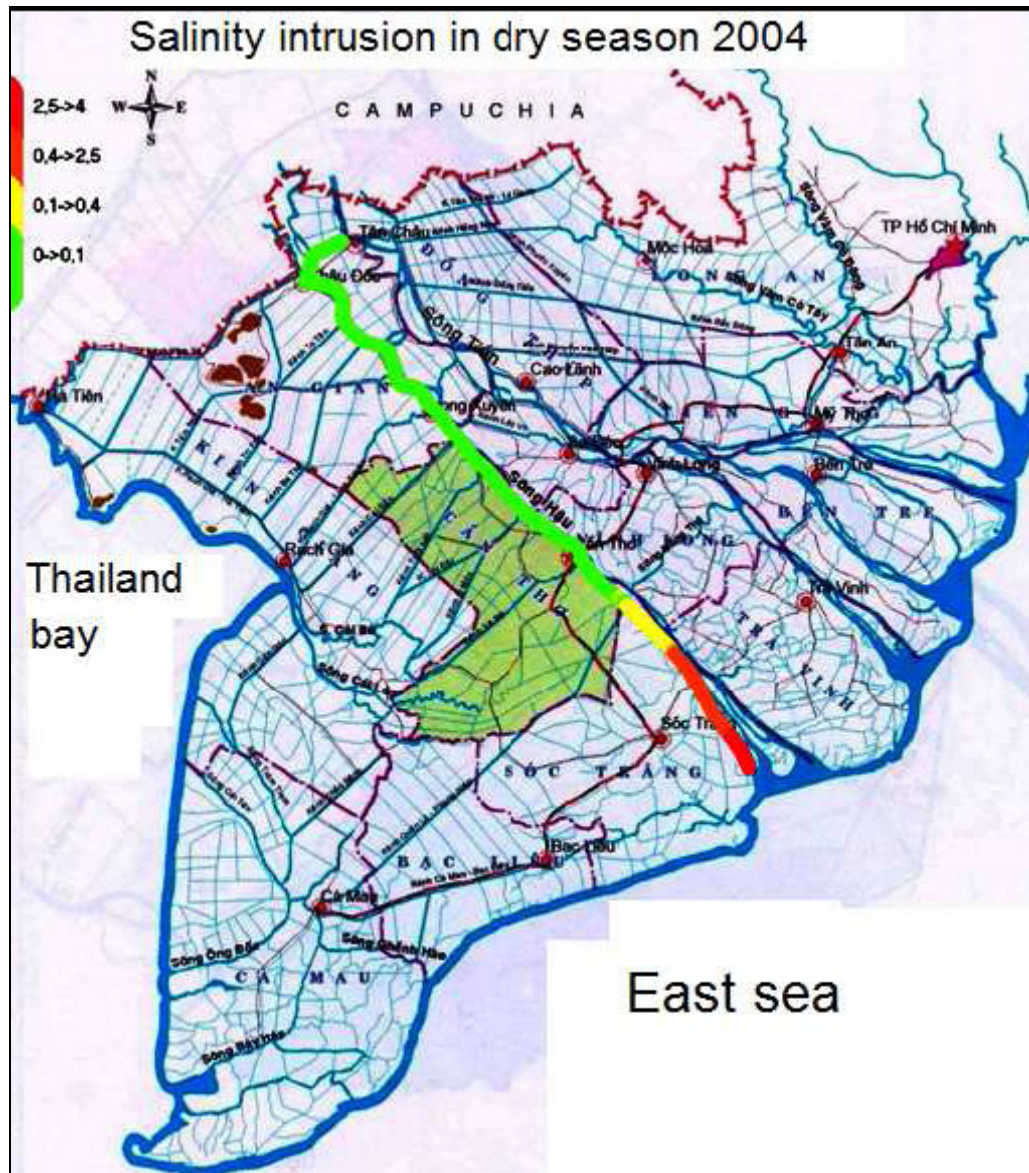


Figure 18 Saline Intrusion in Can Tho, Dry Season 2004

6.5 Vulnerability Overview

6.5.1 Vulnerable Areas

The key vulnerable areas to flooding in Can Tho are listed below and can be reference against Figure 19:

- The flood zone located on the Long Xuyen Quadrangle that include Thot Not, Vinh Thanh districts and part of Co Do and O Mon districts. This area accounts for 68 percent of the area typically flooded; and
- The delta zones impacted by tide and flood at the end of flood season as upstream flows are discharged that include Ninh Kieu, Binh Thuy, Cai Rang districts and the southern part of O Mon and Phong Dien district. This area accounts for 32 percent of the area typically flooded.



Figure 19 Can Tho Districts



Photograph 6 Flooding in Central Can Tho



Photograph 7 Banks of Hua River

6.5.2 Disaster Risk Preparedness and Adaption

Due to the centralised nature of governance in Vietnam the structure for disaster risk management in Can Tho mirrors the provinces. The Can Tho Committee for Flood & Storm Control and Search & Rescue (CFSC) is the focal agency responsible for disaster management, search and rescue activities for the entire city. The flood and storm control is the responsibility of the technical staff in the Department of Agriculture and Rural Development (DARD) while the search and rescue is the responsibility of the Defence Department. See refer to 5.6 Governance, Disaster Management and Adaptation for a brief overview and Appendix D for detailed analysis. Weaknesses include:

- Understanding of the legal documents related to disaster management is weak, especially at the community level and commune level;
- Can Tho has limited legal and institutional capacity which reflects the current status at the national level with respect to climate change;
- The planning process and involvement of the community for flood prevention, control and mitigation is limited;
- Most staff members working on disaster management in Can Tho are part-time and work only during emergencies in flood season. They have received little professional training on disaster management, limiting effectiveness. The awareness of the staff working on disaster management as well as the local communities is still limited; and
- Budget and training for members of the Central Flood and Storm Control to raise awareness and build capacity is inadequate.

6.6 Stakeholder Analysis and Mapping

6.6.1 Stakeholder Groups

There are three main Stakeholder groups present in Can Tho:

- Government (including youth, farmer and women unions);
- NGO;

- University.

Can Tho, like Hue, has an excellent university that is highly regarded both within Vietnam and internationally. The university recently established in August 2008 a Committee for Climate Change (Table 16). Can Tho is becoming the center of science and technology for the Mekong Delta as it has an excellent system of universities (Can Tho University and Medical University), colleges, technical vocational training schools, a software park and research institutes including the Mekong Delta Development Research Institute. Annually, Can Tho City trains more than 20,000 scientific technical staff.

There are also numerous a number of NGOs working in the Province, though less than in Hue (See Appendix C)

6.6.2 Stakeholder Meeting Results

In addition the stakeholder discussions undertaken at the national level with Government Ministries, NGO and Donor, (Table 2), the following stakeholders were engaged with during a series of separate workshops held during the weeks of 14th of July and 18th of August (Table 15).

Table 15 Stakeholders Consulted – Can Tho

Name	Position	Institution
Nguyen Thanh Son	Chairman	Can Tho Peoples Committee
Nguyen Van Hong	Vice-director	Department of Natural Resources and Environment
Lư Thành Đồng	Vice-director	Department of Transport
Lê Hồng Phát	Director	Department of construction
Phạm Văn Quỳnh	Vice-director	Department of Agriculture and Rural development Committee for Flood and Storm Control
Nguyễn Thị Mỹ Lệ	Vice-director	Department of Health
Nguyễn Văn Sếp	Vice-director	Department of Planning and Investment
Nguyễn Cẩm Hồng	Director	Department of External relations
Nguyễn Ý Nguyễn	Vice-director	Department of Science and Technologies
Vũ Thị Cánh	Vice-director	Department of Finance
Huỳnh Văn Diệm	Vice-director	Management board of Production and Industrial zone
Đỗ Ngọc Bắc	Vice-director	Urban construction Company
Ngô Anh Tú	Expert	People Committee of Can Tho city
Phạm Văn Quỳnh	Vice-director	Department of Agriculture and Rural development
Phạm Nam Huân	Expert	Department of Natural Resources and Environment
Nguyễn Văn Ngọc	Chief of Section	Department of Science and Technology
Chương Hoàng Đan	Lecturer	College of the Environment and Natural resources Can Tho University
Nguyễn Hữu Chiến	Head of Department	College of the Environment and Natural resources Can Tho University
Trần Mai Kiên	Vice-chief of section	Institute of Meteorology, Hydrology and Environment
Vũ Nam	Lecturer	College of the Environment and Natural resources Can Tho University
Lê Văn Khoa	Chief of Section	Department of Science Management Can Tho University
Huu Chiem NGUYEN	Deputy director	College of the Environment and Natural resources Can Tho University
Van Cong NGUYEN	Lecturer	College of the Environment and Natural resources Can Tho University
Chan Bac TRAN	Lecturer	College of the Environment and Natural resources Can Tho University
Van Nam VU	Lecturer	College of the Environment and Natural resources Can Tho University
Quang Vinh NGUYEN	Director	Environmental Monitoring Station DONRE of Can Tho
Anh Luan DOAN	Officer	Department of Health
Dinh Don PHAM	Officer	Southwest Environment Protection Agency
Thị Nga BUI	Lecturer	College of the Environment and Natural resources Can Tho University
Van Ngoc NGUYEN	Officer	Department of Science and Technology

As with the other cities, discussions with stakeholders attempted to elicit feedback on the key themes of:

- Exposure and Vulnerability – who and where the vulnerable were located and what were the key impacts facing the city;
- Governance – the awareness, willingness, openness, transparency and capacity of the government;
- Projects – climate change or other projects that may have been completed in the city, to gauge the level of capability to enable project completion, or their relative interesting in future projects given current activity; and
- Actor Diversity – who other players in the city which could be which was used as an indicator of potential partners, champions and also a barometer of current activity.

These themes reflected the criteria developed in Workshop 1 in Hong Kong and listed in Appendix A. Table 16 presents the perceptions of the city, based on the workshop in the city, and discussions with other institutions both internal and external to the city. All results are presented relative to the other two cities of Hue and Quy Nhon.

Table 16 Stakeholder Analysis Results – Can Tho

Criteria	Rank	Comment
Exposure and Awareness		
Exposure	High	Relatively and in general, Can Tho is the 2nd highest of the three cities (behind Hue), but uncertainty surrounding the exact magnitude of sea level rise may make it on par or more exposed to Hue in the future.
Vulnerability	High	The key vulnerable districts impacted lie in the flood zones along the Hua River (Thot Not, Vinh Thanh, and Co Do) districts) and Ninh Kieu, Binh Thuy, Cai Rang districts and the southern part of O Mon and Phong Dien district.
Impacts	High	Key impacts are flooding in the Mekong Delta and specifically the Hua River, sea level rise (predicted large areas of the delta and city could be impacted in 50 years, and saline intrusion. Other impacts mentioned are seasonality change and the impacts on crops and temperature rise.
Awareness	Low - medium	<p>As per other areas in Vietnam (and globally), people in Can Tho are very aware of the direct impacts facing them on an annual basis - flooding. Their daily lives revolve around the policy of “living with floods,” they know the months that floods will occur and disaster preparedness and planning is well developed to deal with the impacts. Their ability to cope is also very high.</p> <p>However, it is the longer term impacts of climate change with potential sea level rise and occurrence of severe weather systems, particularly the large events (eg 1:100 year) which could increase in intensity and are not captured under historical data trends where the uncertainty lies. This level of uncertainty was consistently mentioned during stakeholder meetings. There are very knowledgeable people in the city, however movement down the government structure and into lower levels of the community highlights diminishing awareness.</p> <p>It should be remembered that scenario analysis and impact assessment are still yet to be undertaken at the National Level and this uncertainty reflects the current understanding at the national level.</p>

Criteria	Rank	Comment
Planning	Low to Medium	Urban planning does not explicitly allow for climate change due to uncertainty of impact. Urban planning does require buildings to be of a certain height above recent historical flood levels and a minimum number of establishments in flood prone areas. However this would not be adequate to capture longer term trends, especially the larger storm events which occur rarely but may be increasing in intensity.
Urbanisation	High	As with many areas in Vietnam, urbanization is occurring rapidly and is due to a number of factors: <ul style="list-style-type: none"> ▪ Can Tho has been designated as an economic hub for the region and with economic development comes migration into the city as potential employees seek job opportunities; and ▪ Traditional rural livelihoods are changing as land use changes for industrial development, pollution of groundwater limits yield, or falling prices reduce returns. All contribute to the migration of the rural workforce into the city
Enabling Environment		
Governance	High	Stakeholder meetings were held with senior representatives from numerous Government departments and the perception from these meetings was that the Governance in the city was good. There was genuine interest in a potential program and desire to make any involvement in the city successful. This observation was further supported by feedback from NGOs and the Provincial Competitiveness Index 2007.
Autonomy	High	Can Tho is one of the five Provincial level cities in Vietnam.
Priority of Climate Change	Low to Medium	There is a degree of urgency to deal with floods, but little yet in incorporating climate change impacts into city urban planning. It is anticipated that this will change with the development and approval of the NTP, especially with the requirement for each Province to prepare action plans. The key priority is economic development.
Capacity	Low to Medium	Stakeholder feedback during the meetings with Government officials consistently mentioned the absence of technical expertise to deal with climate change and how to incorporate its effect in urban planning. This is expected to change for a number of reasons: <ul style="list-style-type: none"> ▪ The requirement under the NTP for each Province to develop its own action plan will require Can Tho to actively address this Climate change from a technical perspective. ▪ Can Tho has a strong university which is highly regarded both within Vietnam and in the Asian region. In August 2008, the university established a Committee for Climate Change that seeks to investigate areas of data and its management, impacts to biodiversity, agriculture, and socio economics, enhancing adaptive capacity and linking in as part of an international network of information sharing.
Willingness	High	All parties from the Government through to the University were highly willing to be involved in the Initiative.

Criteria	Rank	Comment
Transparency	High	<p>The response from Government stakeholders during the meeting regarding transparency was positive:</p> <ul style="list-style-type: none"> ▪ Any program has the option of entering and being approved by the Government as either an NGO or Overseas Development Assistance (ODA) program; ▪ The project Proposal must clearly specify the implementing agency, any local partners, the times lines and objects; ▪ Financial management of the Project (if it is and ODA with Government participation) follows the regulations of the City Government; ▪ It is possible to specify any special requirements to ensure transparency including external third party auditors and it was reported that this has often been a requirement on previous ODA.
Multiplicity of Actors		
Foreign actors	High	There are a number of NGOs active in Can Tho and the Province (see Appendix C). Can Tho would rate the 2nd highest of the three cities behind Hue
Academic	High	Can Tho has an excellent local university with a good reputation both nationally and internationally. The university is well networked internationally particularly with regard to research on the Mekong River Delta.
Champions		<p>There are a number of potential areas that could be investigated further for a champion depending on the nature of Initiative (ODA or NGO). Good stating points would be either:</p> <ul style="list-style-type: none"> ▪ The university and their environment and Climate Change researchers and staff; ▪ Government departments including Department of Planning or the Department of Natural Resources and Environment; ▪ The Civil Society (Women Union, Farmers Union, Youth Union could be used, especially for information dissemination as they have linkages into all levels of Vietnamese society.

6.7 Policy and Initiatives

Policy with regard to climate change follows the national level direction. It will be a requirement that each province will need to prepare an action plan in response to the impacts of climate change. Can Tho also has a number of unique policies to deal with its location in the Mekong Delta.

6.7.1 Initiatives

To help better manage and prepare for annual flooding, a flood warning system for the region has been built by the Mekong River Commission. Mathematical models have now been used to computerize various alternatives for short-term flood control in the Mekong Delta. Efforts are being made to improve the models as essential tools in flood control planning and forecasting. A monitoring network is necessary to assess changes in flow regimes and to provide early identification of negative impacts. In the coming years, the pursuit of long-term flood control planning is necessary as a comprehensive solution to flood control and drainage challenges in the whole Mekong Delta.

For several years, under the coordination of the city CFSC, some local and international NGOs have started working with academic institutions to build the capacity of communities and help enhance awareness on preparedness and undertake small scale structural measures like house strengthening, school and road upgrade.

6.7.2 Adaptation - “Living with Floods”

People in Can Tho recognize that floods have both negative and positive effects. Besides huge damages, floods also bring many benefits for the people, especially the poor. They knew how to adapt and respond to floods as part of their livelihood strategy through years of experience. Since the 1990's, and especially following the large floods at the beginning of 2000, the government has invested greater physical and human capital to cope with floods. The new policy on the flood situation was called “living with flood” (LWF).

Among measures of the LWF policy, resettlement is considered a suitable solution. The physical aspect of this policy is that a “Residential Resettlement Cluster” (RRC) or the “Resettlement Path” (RP), can be built in permanently flooded areas. The social aspect of the policy and the main objective of the program are to ensure normal livelihood conditions for the people living in flooded areas. To achieve this, a number of requirements are stipulated:

- The basement of a RRC should be 0.5 - 1.0 m higher than the flood's water level in 2000;
- Construction of the resettlement area including public infrastructure such as marketplaces, schools, clinics, communication systems, roads, electricity, and water supply, and the RRC are to be designed conditional on allowing the free flow of floods. However, in reality building of the RRC is usually linked with dyke systems;
- In the shallowly flooded area, the dyke system has the specification of 2.5 m top x 4.5 m bottom x 2.0 m height;
- In permanently flooded areas at least two residential clusters must be built in a commune;
- In the deeply flooded area, the combination of canals and resettlement with a large dyke system or housing on stilts is recommended;
- Households living dispersedly in the flooded areas are able to get preferential treatment such as loans to raise houses (eg building on stilts).

Total investment capital for the program was approximately US\$200 million. In the period 2001-2007, Can Tho built 24 resettlements for 2,727 households at Vinh Thanh, Co Do, Thot Not, Phong Dien, Binh Thuy district. The city is preparing the second phase of the Program for the period 2008-2010.

6.7.3 Projects

Projects identified in the city are listed below in Table 17.

Table 17 Projects and programs related to Climate Change and Environment in Can Tho

Project	Funding institution/donor	Host organization	Implementation agency	Duration	Budget (USD)
Sustainable communities development of the district of Phong Dien	Heifer International (Vietnam Heifer program)	Department of Agriculture and Rural development	Co-operative and Rural development agency	2007-2010	35,000
Sustainable communities development for O Mon district	Heifer International	People Committee of the City	Department of Agriculture and Rural development	04/2008-04/2011	40,681
Enhancement of the environmental protection in Vietnam Mekong Delta with the support to the communities' initiatives	Toyota Foundation	Can Tho Health care School		3 years	90,000
Clean water supply and environmental sanitation	World Bank	Woman Union of Can Tho City	Woman Union of Can Tho City	Since 2002	16,343,75
Conservation and development of the biodiversity	SEARICE	Ministry of Education and Training	Mekong Delta development research Institute	01/01/2006-31/12/2009	250,000

Other projects include:

1. Green City Can Tho project: Can Tho was recognized as a green city thanks to its achievements in effectively implementing a project on environmental protection, which received EUR 779,000 from the European Community and DANIDA for its first phase (2003-2004) and EUR 720,000 for the second phase (2005-2006). The project promoted a model for building a city towards the principles of sustainable development. The main activities were establishing training sessions and information seminars, capacity building at technical, political, and administrative level, and creating awareness and willingness towards sustainable actions in the general public.
2. Waste treatment project in south Can Tho. The European Union (EU) donated approximately 315,000 Euros to help Can Tho carry out a project on improving the environment. The project has been implemented over two years (2007-2008), and aims to classify 90 percent of rubbish collected from the city's residential areas, 100 percent of rubbish from markets and 60 percent of rubbish from other public places. Can Tho will also install another six containers in markets, 1,440 dustbins in schools and two factories for collecting and recycling rubbish.
3. Sustainability of integrated rice-aquaculture farming in the Mekong Delta- Can Tho city (1997-2001). The project donated by ACIAR aims to identify management strategies and government policies applicable to the farming systems that operate in the brackish water coastal region of the Mekong delta and focus on integrated rice and shrimp culture. The Executing Agency and Implementing Agency was Can Tho University. The Co-implementing agency was University of Sydney.
4. Marine Aquaculture in the Mekong Delta and Upgrading Research and Educational Capacity (1997-2000; BADC/ UNIV/14). The Belgium government donated

approximately USD 434,000 to help the city of Can Tho upgrade the educational capacity of Can Tho University in the field of marine aquaculture, and setting up a centre where Vietnamese staff, extension workers, teachers and aquaculturists can be trained. The Executing Agency, Implementing Agency, Co-implementing was Can Tho University, ASRDC, State University of Gent (Belgium) respectively.

5. Vietnam-United State cooperation on climate change: During the official visit to the United States in June 2008, the Vietnamese Prime Minister Nguyen Tan Dung and President Bush discussed the commencement of the Delta Research and Global Observation Network (DRAGON) project in Vietnam. DRAGON which will establish an institute at Can Tho University to cooperate on training and research to produce healthy ecosystems and sustainable deltas. The two leaders also agreed to work together to promote Vietnamese climate change adaptation and mitigation efforts, including the formation of a new subcommittee under the bilateral Science and Technology Agreement to discuss and coordinate joint initiatives.

7 City Overview – Quy Nhon City, Binh Dinh Province

7.1 Introduction

Quy Nhon contains approximately 264,800 persons with a relatively high density of 932 persons per km². It is the administrative and commercial centre of Binh Dinh Province and is located in the coastal central region of Vietnam. Most of the administrative, important economic units, commercial and touristic areas such as Quy Nhon Port, Thi Nai lagoon, Ganh Rai bay and mount are located in the city. Centrally located on the coast 1065 km south of Hanoi and 650 km North from Ho Chi Minh City, Quy Nhon is one of the key central economic zones and a rapidly growing city, drawing increasing attention from both the Central Government and international development bodies. Administratively, Quy Nhon is a second-grade (or district level) city, one of the 11 districts of Binh Dinh province but at the same time a political and economical centre of Binh Dinh province (Figure 20).



Figure 20 Quy Nhon

7.2 Social – Economic Characteristics

Quy Nhon city is a young and rapidly developing city that contains an operational seaport and several industrial parks. The seaport and industrial parks are under extensive construction and upgrade and the intention is to develop the area as a strategic deep seaport and industrial-service centre in the future.

Quy Nhon has 21 administrative units consisting of 16 urban wards and 5 rural or suburban communes which are called by the local people and authority “island and peninsula

communes” - Nhon Ly, Nhon Hoi, Nhon Hai, Nhon Chau and Phuoc My communes. All the provincial and city levels administrative and functional institutions are located in Quy Nhon city.

The natural population growth rate is similar to the other cities at around 1.2 percent in 2006. The rate of population aged 15 and over and working was about 52 percent.

In 2006, the GDP of the province at current price was about 12,314.5 Billion VND, nearly doubling the value recorded in 2003 and similar to the level recorded in Can Tho. 36.6 percent came from Agriculture, Forestry and Fishery, 28.2 percent from Industry and Construction, the remaining 35.2 percent came from other sectors. Average GDP growth between the period 2003 to 2006 was strong and highest of the three cities at around 20%, with highest growth by sector being recorded in industry and electricity, construction, transport and services. Total investment capital in the whole province in 2006 is almost doubled, from 2,600 billion VND in 2003 to 5,192 billion VND (Table 18).

Table 18 General Socio Economic Indicators, Quy Nhon

Parameter/year	2003	2004	2005	2006
Average population ('000 persons) of Quy Nhon city	252.2	255.1	257.9	264.8
Average population ('000 persons) of Binh Dinh province	1530.3	1545.3	1556.9	1566.0
Population density (pers/sq km) Quy Nhon	888.0	898.2	908.1	932.4
Population density (pers/sq km) Binh Dinh	254.1	256.6	258.5	260.0
Males - Binh Dinh	743.1	750.7	756.2	762.7
Females - Binh Dinh	787.2	794.6	800.7	803.3
Urban - Binh Dinh	381	387.1	391.9	409
Rural - Binh Dinh	1149.3	1158.2	1165	1157
Natural growth rate (%)	1.06	1.15	1.22	1.2
GDP (Dongs billion)	6513.6	8169.8	10293.7	12314.5
GDP of Agriculture, Forestry and Fishing (%)	39.9	38.5	38.4	36.6
GDP of Industry and construction (%)	25.8	26.8	26.7	28.2
GDP of services and others (%)	34.3	34.7	34.9	35.2
GPD Growth (%)	11.9	25.4	24.6	19.6
Development investment capital (Bill. VND)	2600	3150	4100	5192
Export value (1000USD)	139,220	193,789	214,924	243,800
Number of telephone per 10,000	395.3	453.9	540.6	662.8
Number of pupils (1000 person)	357.1	354.8	348.4	343.4
Number of hospital beds (beds)	2195	2230	2230	2240
Number of medical staff (person)	2537	2521	2797	2748

Source: Statistical Yearbook of Binh Dinh 2007

7.3 Environmental Characteristics

7.3.1 Climate

Quy Nhon is located in the tropical monsoon climate zone with the dry season occurring from January to August and the rainy season from September to December where around 70 percent of total annual rainfall is received. Quy Nhon averaged an annual rainfall of approximately 1800 mm since 2000 (Figure 21).

The rainy season is usually associated with storms, typhoons and high tides, leading to severe flooding and inundation and change of water level in Thi Nai lagoon. The long dry season usually has very low rainfall and very hot summer months lead to water shortages, drought, and changes in downstream water conditions.

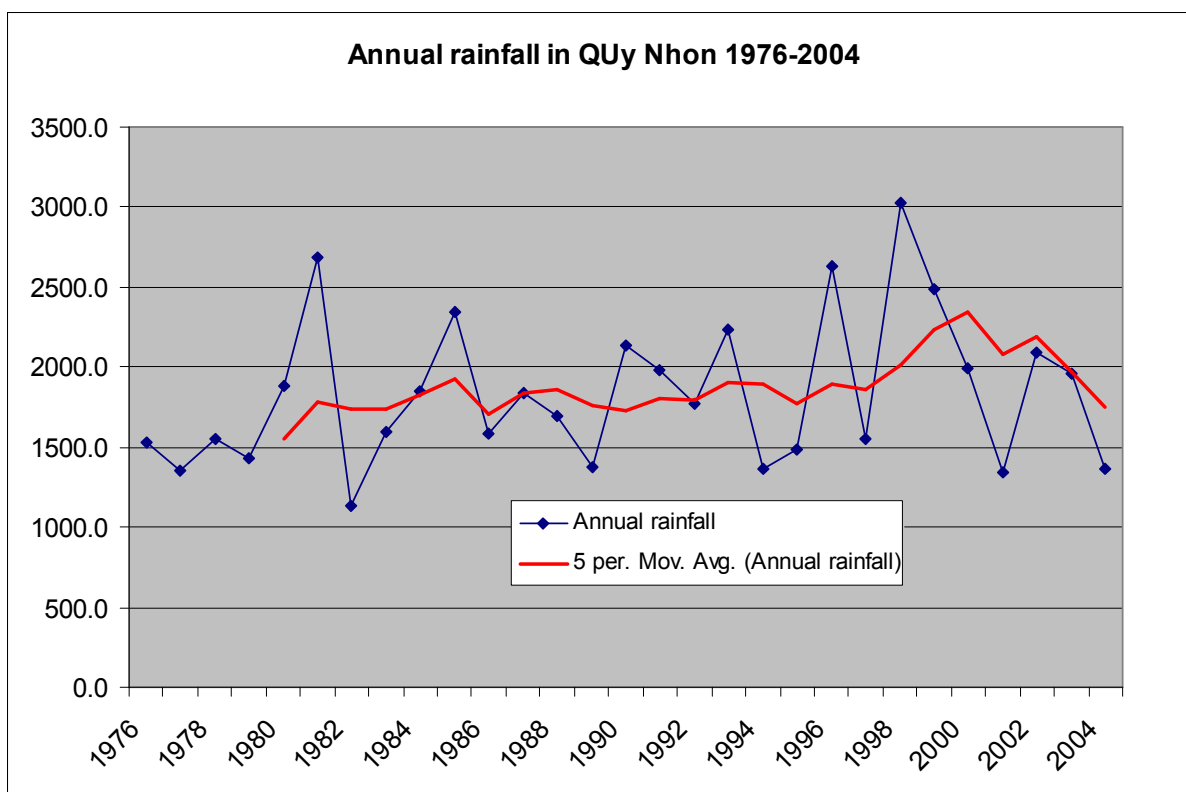


Figure 21 Rainfall in Quy Nhon (1976 to 2004)

(Source Quy Nhon statistical Office 2007)

Average temperature in is around 27 °C and In the last 40 years, there is has been an upward trend in average annual temperature and temperature of typical months for the seasons (Figure 22).

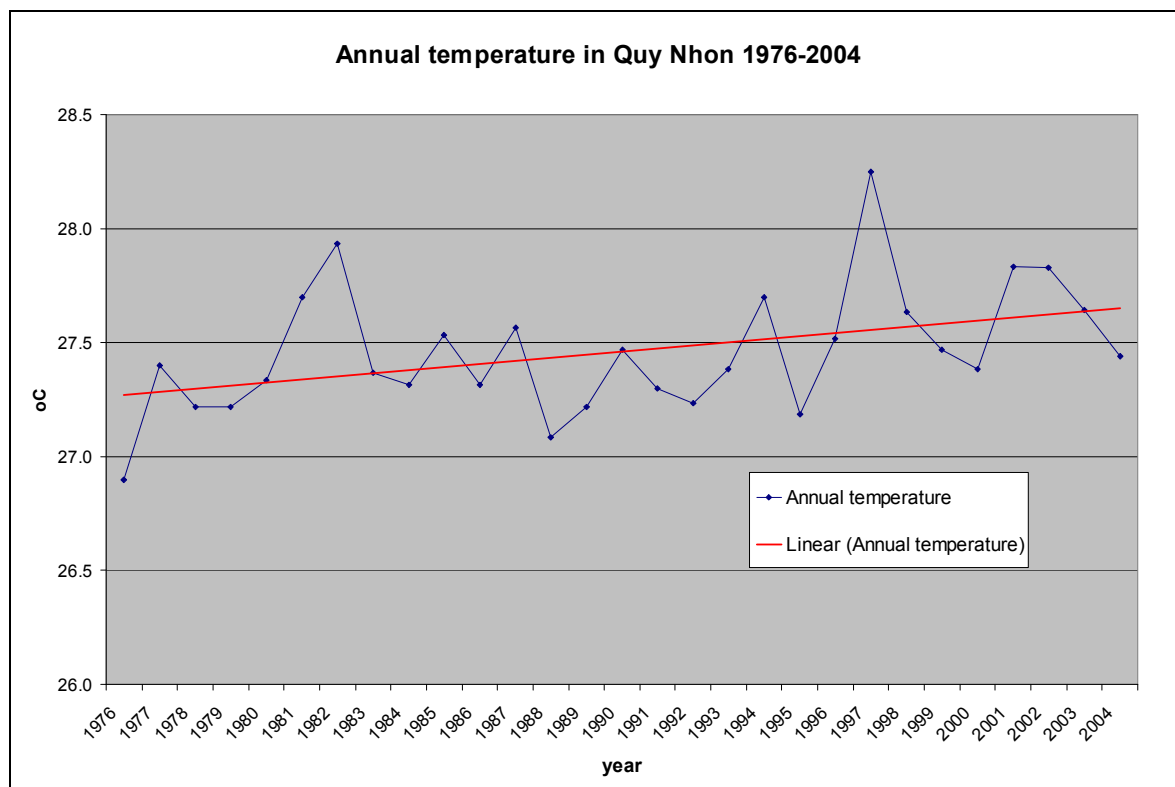


Figure 22 Mean annual air temperature Quy Nhon, Degrees Celsius (1976 to 2004)

(Source Quy Nhon statistical Office 2007)

7.3.2 Water Resources

The Ha Thanh River passes through Quy Nhon and flows into the Thi Nai Lagoon. The lagoon is a unique ecosystem and occupies an area of about 5,060 ha serving as an important ecological asset to the region. The biodiversity it supports in turn provides aquaculture and fishery livelihoods to the local population. Water for municipal and civil use is mostly taken from ground water sources.

7.4 Climate Risk Overview

The main potential impact of climate change/ disasters to Quy Nhon City is storms, typhoons and sea level rise, leading to flooding, coastal erosion and loss of land. Other high risk are drought/ desertification of coastal and paddy land, lack of clean water due to saline intrusion and increasing pollution.

Increasing temperature was also reported as an impact to human health, particularly sensitive groups such as the elderly, children, and those with chronic cardio-vascular and respiratory diseases.

7.5 Vulnerability Overview

The most vulnerable groups in Quy Nhon are the 5 rural or suburban communes of Nhon Ly, Nhon Hoi, Nhon Hai, Nhon Chau and Phuoc My. Mostly located around Thi Nai lagoon and the coastline, they are highly susceptible to the impacts of extreme weather, sea level rise and disaster. These communities are mainly dependant on fishing and aquaculture for their livelihoods. Their livelihoods are strongly influenced by the weather/climate and water environment of the lagoon. They are also generally poor households with low incomes and their ability adapt and cope is less.



Photograph 8 Mangrove Replanting and Local Fisherman



Photograph 9 Fishing communities in Quy Nhon

7.6 Disaster Risk Management and Adaptation

As mentioned previously, the centralised nature of governance in Vietnam means that the structure for disaster risk management in Quy Nhon mirrors that already described for Can Tho and Hue. Binh Dinh Provincial Committee for Flood & Storm Control and Search & Rescue (PCFSC) is the cross-sectional focal point established under the direction of the Provincial People's Committee (PPC) and led by the PPC chairman. The PCFSC is responsible for disaster management and search and rescue activities for the entire province, especially in the more vulnerable coastal and lagoon areas as well as in Quy Nhon city. See refer to 5.6 Governance, Disaster Management and Adaptation for a brief overview and Appendix D for detailed analysis.

Weaknesses mirror those already discussed and include:

- understanding of the legal documents related to disaster management is weak, especially at the community level and commune level;
- limited legal and institutional capacity which reflects to the current status at the national level with respect to climate change;
- The planning process and involvement of the community for flood prevention, control and mitigation is limited;
- Most staff members working on disaster management in Can Tho are part-time and work only during emergencies in flood season. They have received little professional training on disaster management, limiting effectiveness. The awareness of staff working on disaster management as well as the local communities is still limited with the only real training opportunities offered by NGO such as CARE and Red Cross; and
- Budget and training for members of the Central Flood and Storm Control to raise awareness and build capacity is inadequate.

Quy Nhon is not a wealthy area by Vietnamese standards. The financial allocations for disaster management and climate change related activities are insufficient. With the development of new industrial parks, economic zones, the port, the city is already struggling to cope with the demands placed on its existing urban infrastructure.

7.7 Stakeholder Analysis and Mapping

7.7.1 Stakeholder Groups

There are three main Stakeholder groups present in Quy Nhon:

- Government (including women, farmer and youth unions);
- NGO;
- University.

Quy Nhon has recently established a small university less well known than either Can Tho or Hue. There are a small number of NGO in the city and/or Province, in particular CARE, East Meets West and The Red Cross who are actively working at various levels on raising awareness and preparedness. Quy Nhon has the smallest NGO presence relative to the other two cities (See Appendix C)

7.7.2 Stakeholder Meeting Results

In addition to the stakeholder discussions undertaken at the national level with Government Ministries, NGO and Donor, (Table 2), the following stakeholders were engaged with during a series of separate workshops held during the weeks of 14th of July and 18th of August (Table 19).

Table 19 Stakeholder consulted - Quy Nhon

Name	Position	Organisation
Ngoc Bich THAI	Chairman	People's Committee of Quy Nhon
Van Thien NGUYEN	Permanent Vice Chairman	People's Committee of Quy Nhon
Van Thanh PHAM	Deputy secretary	Binh Dinh Provincial Party Committee
Dinh Van Tien	Vice Director	Vice director of provincial Department of Natural Resources and Environment (DONRE)
Le Thi Kim Mai	Vice Chairman	Vice chairman of provincial Farmers Union
Nguyen Thi Hien	Member	Member of Steering Committee – provincial Women Union
Nguyen Thi Phong Vu	Representative	Representative of provincial Youth Union
Dao Duy Chap	Chairman	Chairman of provincial Red Cross
Tran Si Dung	Director	Director of provincial HydroMet Forecasting Center
Truong Quang Phong	Director	Head of Division of Science, provincial Dept. of Science and Technology
Dam Van Loi	Representative	Representative of provincial Committee for Flood and Storm Control, Search and Rescue (CFSC)
Le Dang Tuan	Vice Director	Vice head of Division for Architecture and Spatial Planning Management, provincial Department of Construction
Viet Hien	Correspondent	Correspondent of Binh Dinh province's newspaper
Nguyen Van Bao	Representative	Representative of provincial Department of Agriculture and Rural Development
Le Van Hoa	Representative	Representative of Binh Dinh province's Management Board for Industrial Parks and Zones
Pham Thuy Trang	Officer	Officer of Division for Natural Resources and Environment of Quy Nhon city (under the city's people committee)
Phan Thanh Dam		Vice director of Division for Natural Resources and Environment of Quy Nhon city
Nguyen Trung Kien	Vice Director	Vice Head of Administrative Bureau of the DONRE
Tran Dinh Chuong	Vice Director	Vice Head of Division for Water and Mineral Resources of the DONRE
Nguyen Viet Cuong	Officer	Officer of Environmental Division of the DONRE
Truong Huynh Anh	Officer	Officer of Environmental Division of the DONRE
Ly Tam Vy	Officer	Officer of Environmental Division of the DONRE
Hong Hai VO	Officer	Department of Trade and Industry

As with the other cities, discussions with stakeholders attempted to elicit feedback on the key themes of:

- Exposure and Vulnerability – who and where the vulnerable were located and what were the key impacts facing the city;

- Governance – the awareness, willingness, openness, transparency and capacity of the government;
- Projects – climate change or other projects that may have been completed in the city, to gauge the level of capability to enable project completion, or their relative interesting in future projects given current activity; and
- Actor Diversity – who the other players in the city may be which was used as an indicator of potential partners, champions and also a barometer of current activity.

These themes reflected the criteria developed in Workshop 1 in Hong Kong and listed in Appendix A. Table 20 presents the perceptions of the city, based on the workshop in the city, and discussions with other institutions both internal and external to the city. All results are presented relative to the other two cities of Hue and Can Tho.

Table 20 Stakeholder Analysis Results – Quy Nhon

Criteria	Rank	Comment
Exposure and Awareness		
Exposure	High	Lowest of the three cities.
Vulnerability	High	The most vulnerable groups are the five rural or suburban communes of Nhon Ly, Nhon Hoi, Nhon Hai, Nhon Chau and Phuoc My, mostly located around Thi Nai lagoon and the coastline. Dependant on fishing and aquaculture for their livelihoods they are also generally poor households.
Impacts	High	Key impacts are flooding and severe storms, lesser impacts mentioned are erosion and temperature rise.
Awareness	Low to Medum	As per other areas in Vietnam, people in Quy Nhon are very aware of the direct impacts facing them on an annual basis – storms and flooding. Their daily lives revolve dealing with annual storms and flooding, they know the months that storms will occur and disaster preparedness and planning is well developed to deal with the impacts. Their ability to cope is very high. However, it is the longer term impacts of climate change with respect to sea level rise and possible increasing intensity and frequency of severe storms of which they are uncertain. It should be remembered that scenario analysis and impact assessment are still yet to be undertaken at the national level.
Planning	Low to Medium	Urban planning does not explicitly allow for climate change due to uncertainty of impact. Urban planning does require buildings to be of a certain height above recent historical flood levels and a minimum number of establishments in flood prone areas. However this would not be adequate to capture longer term trends, especially the larger storm events which occur rarely but may be increasing in intensity and frequency.

Criteria	Rank	Comment
Urbanisation	High	<p>As with many areas in Vietnam, urbanization is occurring rapidly. Quy Nhon is a “young” relatively poorer city that is putting measures in place to seek and generate economic growth. This in turn will contribute to the problems rapid urbanization generates. Visits to the city saw the new zones flagged for industrial development together with the road infrastructure to support it, and the areas where the original inhabitants had been re-located.</p> <p>The outer areas of the cities are simple fishing villages often without electricity and basic housing. Comments made during the stakeholder meetings regarded the effects of temperature rise on the older members of the community and this was witnessed first hand in the poorer areas. Urban growth without the infrastructure to support it is a pressing issue.</p>
Enabling Environment		
Governance	High	<p>Of the three cities, Quy Nhon stood out as having the highest Governance. Stakeholder meetings were held with some of the most senior representatives from the Province and numerous City Government departments and the perception from these meetings was always highly positive. The leadership is young and energetic.</p> <p>These observations were supported by the NGO with work experience in the Province and the city (East Meets West, Red Cross, CARE) who all reported favorably on the working experience with Government. CARE is one of the few NGOs based in the city and reported a good working relationship.</p> <p>The city is ranked 4th under the Provincial Competitiveness Index 2007.</p>
Autonomy	Medium	Quy Nhon is a district level city under the control of the Province.
Priority of Climate Change	Low to Medium	There is a degree of urgency to deal with floods and storms, but little yet in incorporating climate change impacts into city urban planning. It is anticipated that this will change with the development and approval of the NTP, especially with the requirement for each Province to prepare an action plan. The key priority is economic growth.
Capacity	Low to Medium	<p>Stakeholder feedback during the meetings with Government officials consistently mentioned the absence of technical expertise to deal with climate change, how to incorporate its effect in urban planning etc.</p> <p>This is expected to change somewhat with the requirement under the NTP for each Province to develop its own action plan to actively address this Climate change from a technical perspective.</p>
Willingness	High	All parties from the Government were highly willing to be involved in the Initiative.

Criteria	Rank	Comment
Transparency	High	<p>The response from Government stakeholders during the meeting regarding transparency was positive:</p> <ul style="list-style-type: none"> ▪ Any program has the option of entering and being approved by the Government as either an NGO or Overseas Development Assistance (ODA) program; ▪ The project Proposal must clearly specify the implementing agency, any local partners, the times lines and objects; ▪ Financial management of the Project (if it is and ODA with Government participation) follows the regulations of the City Government; ▪ It is possible to specify any special requirements to ensure transparency including external third party auditors and it was reported that this has often been a requirement on previous ODA.
Multiplicity of Actors		
Foreign actors	Medium	There are a few international NGOs working in the city and province but only VSO, CARE and Red Cross were identified as being based (had representative offices) in the city. The main NGO active in the Province are listed in (Appendix C). Quy Nhon would be the lowest of the three cities with regard to NGO activity.
Academic	Medium	Quy Nhon has a recently opened a University but it would be of relatively less renown then either Hue or Can Tho
Champions		<p>There are a number of potential areas that could be investigated further for a champion depending on the nature of Initiative (ODA or NGO). Good stating points would be either:</p> <ul style="list-style-type: none"> ▪ Red Cross or CARE; ▪ Government departments including Department of Planning or the Department of Natural Resources and Environment; ▪ The Civil Society (Women Union, Farmers Union, Youth Union) could be used, especially for information dissemination as they have linkages into all levels of Vietnamese society.

7.8 Policy and Initiatives

The provincial and Quy Nhon city level Governments have planned and implemented a number of positive policies and activities to improve infrastructure and livelihoods. These include a rural transport project, a major bridge, urban and suburban water supply, city sanitation projects, and a coastal cultural road along the shoreline to promote tourism. However none of these projects have had a focus on climate change.

Of the three cities reviewed, Quy Nhon is the least less well known and receives less attention from both international donors and central government and the financial, technical and human resources are relatively limited. Projects identified are listed below in Table 21

Table 21 Initiatives in Quy Nhon

Project	Funding institution/ donor	Host organization	Implementation agency	Duration	Budget
SEMLA project on “Strengthening capacity for environment management and land administration”	SIDA (Sweden)	The PPC and the DONRE in 9 provinces of Vietnam	DONRE	2004-2009	239 mill DKK (about 46 mill USD) for the whole project
“Getting prepared: Enhancing community-based disaster preparedness and coping capacity in vulnerable communities of Binh Dinh province, Vietnam”	DIPECHO or European Commission for Human Aid, Disasters Preparedness Program and CARE Deutschland	CARE international in Vietnam (INGO)	Department of Agriculture and Rural development of Binh Dinh province	01/2007-03/2008	
Restoring ecosystem and sustainable use of natural resources in Con Chim (Bird land) reservation area, Thi Nai lagoon	Local/ Provincial budget with some international support from ACTMANG to plant mangroves in Thi Nai lagoon	Former Dept of Fishery, Management Unit of Con Chim ecological reservation area	Department of Agriculture and Rural development of Binh Dinh province	3 years	about 160,000 USD
Developing flood maps for Quy Nhon and some other locations (estuarine rivers and coast line) in Binh Dinh; Studies on erosion in Ha Thanh river	Local fund for scientific research support	Binh Dinh PPC and Quy Nhon University	Quy Nhon University	Since 2003	unknown (Less than 30,000)
Study for Binh Dinh province’s Integrated Coastal Zone Management (ICZM) and developing DITAGIT data base for ICZM	Government and provincial fund for scientific research support	Binh Dinh PPC	Nha Trang Institute for Oceanography	2004	unknown
FSPS II or Fishery Program Support, phase II	DANIDA	Dept of Fishery, now the DARD	Ministry of Fishery, now MARD	2006-2010	About 4.4 mill USD
Construction of Great Bridge over the Thi Nai lagoon to the planned industrial park near the lagoon	Central Government and provincial fund	Binh Dinh PPC	Different contractors by tender	5 years	Unknown – major infrastructure
Drought preparedness and mitigation to support communities to sustainably live with recurrent droughts	USAID/OFDA	CARE international in Vietnam	CARE Binh Dinh, with DARD of Binh Dinh, Binh Dinh Red Cross.	2007-2009	unknown

Some additional information regarding the projects listed above is present below.

1. Getting prepared: Enhancing community-based disaster preparedness and coping capacity in vulnerable communities of Binh Dinh province, Vietnam”. The project was carried out by CARE in Vietnam with funds from the Disaster Preparedness Programme of European Commission’s Humanitarian Aid Office (DIPECHO) and CARE

Deutschland. Its first phase started in December 2004 and will end in February 2006. The project was implemented in Binh Dinh province and activities were conducted in six communes seriously affected by disasters.

2. "Drought preparedness and mitigation to support communities to sustainably live with recurrent droughts." Implementing organization: CARE International in Vietnam in partnership with the Department of Agriculture and Rural Development of Binh Dinh, Binh Dinh Red Cross , representatives of Phu My, Van Canh and Tuy Phuoc Districts. The goal of the program is to enable poor households in three selected districts and communes in Binh Dinh to sustainably live with recurrent drought. This is a two year project funded by the United States Agency for International Development /Office of US Foreign Disaster Assistance (USAID/OFDA). The project objectives will be achieved through outputs from activities within three intervention areas (1) capacity building on drought preparedness and mitigation and strengthened inter-operability through institutional linkages (2) livelihood improvement through efficient and sustainable use of limited resources and (3) water and sanitation related activities on low cost water technology and usage.

8 Phase II City Recommendations

8.1 Recommended Cities

8.1.1 Introduction

All coastal cities in Vietnam face the challenges that climate change will bring over time. It would be possible to have chosen any of the eight cities at the beginning of this investigation and been relatively confident that there was a vulnerable population within each of them that was exposed to climate change impacts. What this investigation has tried to assess is which of these eight cities might be the most appropriate for the Rockefeller Foundation's ACCCRN Initiative, and in particular which city might have the best enabling environment.

The investigation relied predominantly on detailed and diverse stakeholder engagement to assess the enabling environment. Discussions were held with senior representatives at all levels of Vietnamese Government from the National level to the Provincial and City level. These discussions were useful in gauging the impacts facing the city, the vulnerable areas within them, and the willingness, autonomy, capacity and capability of the governance structure. To provide a more balanced perspective, these discussions were counterchecked with a literature review and further discussions with the NGOs as well as Donor organisations working in the country who were familiar with the Governments themselves. The results of this investigation is summarised below (Table 22).

Table 22 Summary Results Table, Can Tho, Hue and Quy Nhon

Indicator	Can Tho	Hue	Quy Nhon
Exposure	High	High	Medium
Vulnerability	High	High	High
Awareness	Low to Medium	Low to Medium	Low to Medium
Governance	Medium	Medium	High
Interest	Medium	Low	High
Academic Institutions	High	High	Medium

Where:

- Exposure - Severity of impact from climate change
- Vulnerability - Exposure of population within the city to the effects of climate change
- Awareness - Understanding of the city of the longer term implications of climate change
- Governance - Openness and Willingness of the city Government
- Interest – Potential interest and available resources to be involved in the Initiative based on the current level of activity. High activity, as in the case of Hue, may lessen interest for further programs, while Quy Nhon which has the least, may have relatively more interest
- Academic Institutions - Strength of city university

It should be noted that the results in the table are relative to each other. So while all three cities have high exposure to climate change impacts, Can Tho and Hue are more highly exposed relative to Quy Nhon. All cities contain vulnerable communities within them and

all cities have a similar level of awareness of the longer term impacts of climate change. They also have similar degrees of incorporation of climate change into current planning and are seeking to develop more in the near future.

Governance is highest in Quy Nhon while both Hue and Can Tho are relatively equal. The current levels of climate related investment and activity is highest Hue followed by Can Tho and Quy Nhon.

In terms of technical capability from the perspective of Government Departments, all three cities are relatively equal. This rating also reflects the stakeholder feedback regarding the three cities. Finally the academic institutions are strongest in Can Tho and Hue and relatively weaker in Quy Nhon.

8.1.2 Recommendations

Based on the results of this phase of the study, Can Tho is recommended as the preferred city for further engagement. It has high exposure, high vulnerability, a good enabling environment combined with a good university. Its location also makes it highly suitable not only for replication in other cities located further south in the Mekong Delta, but also neighbouring countries such as Thailand.

Quy Nhon is also recommended even though its exposure is less. This city is very interesting in that it contains many of the key elements required for a successful program and if its relative exposure was similar to Can Tho or Hue, it would be a strong candidate for the most preferred city. It has a very good enabling environment with a young and energetic leadership and the feedback from NGO's working in the area was consistently very positive. It is actively seeking economic growth and is investing in the infrastructure such as a new port, bridges and roads to make this a reality.

The challenges facing Quy Nhon in an urbanization sense are large and at a stage where future growth and direction can be influenced at an early stage of the city's expansion. The lack of academic capacity and lack of recognized NGO's reflects the less wealthy starting point it has faced compared to the other two cities. The city has a lower academic capacity but this could also be seen as an opportunity, where raising awareness and technical capability through some form of enhanced academic engagement could be used to develop linkages both within Vietnam and Internationally.

Hue is not recommended for further investigation. While its exposure is the highest of the three cities, its enabling environment is perceived by stakeholders as less strong in comparison to the other two cities. There is also currently a lot of interest in Hue in the area of Climate Change due to its high level of exposure and this also raises some concern as to its current capacity and relative interest to work with yet more investment.

During the course of this assessment Da Nang has been demoted from consideration but we believe that Da Nang could also be considered as a potential city. It is similar in many ways to Quy Nhon in that it has similar levels of exposure but probably has a stronger better government. It has a high level of committed investment and if an appropriate Champion could be identified to support an initiative then it might work. One negative aspect for potential engagement in Da Nang could be the issue of balancing expectations in this city as they would likely need to be carefully managed. This city should only be considered if there is a reasonable degree of certainty that a program will be implemented there or where the replication stage needed a host city to be implemented.

8.2 Potential partners

It would be prudent at the early stages of the detailed investigations in Phase II to have a local partner on the team who does not have a direct connection (i.e. non local) to either Can Tho or Quy Nhon.

This would allow a more balanced impartial perspective to be gained as potential city level partners, champions and programs themselves are identified. While a number of suitable individuals were identified in both cities from either NGO's, academia (Can Tho), and government institutions (Can Tho, Quy Nhon) it is not really clear at the end of Phase I as to whom would be the most appropriate to approach. This in part reflects the uncertainty of the program, whether NGO based or an ODA.

Engagement of a local individual immediately may bias the information flow from the city towards a particular program. An outsider may be able to work across institutions more freely and provide a more balanced picture of where future resources could be targeted.

The relationship that we have developed with our current local country partner has worked well and we have found them to be unbiased and impartial in the assessments that have been carried out to date. As a result we would recommend Dr Bach Tan Sinh and his team as a suitable local partner to develop engagement at the local level in Phase II. Dr Sinh and the team have a good understanding of the issues and most importantly, they have some good connections with academics as well as government that can help facilitate easier and more rapid access into the target city.

It is anticipated that as the Phase II progresses and takes shape, local city specific partners and Champions will be identified. This should include a local Government Department, academic research institution, NGO's and or combinations of all three.

The search for an appropriate Champion or driver of the initiative should not only focus on the city level but should also widen its search to other institutions that have individuals who have an interest in the city. These individuals may be overseas or elsewhere in Vietnam. In particular the university in Can Tho which has strong linkages to other universities in the region and internationally and these could be searched to identify external parties or those within the city willing to become involved in the engagement process.

8.3 Key gaps that need to be addressed

There are a number of key gaps to be resolved that include:

1. Impact – The degree of impact from climate change is a key data gap in Vietnam and a point consistently reiterated during stakeholder meetings. The general impacts to the country may be able to be defined at the national level but significant uncertainty arises on the local impacts over time. One of the problems relates to local data quality and local assessments of the trends and data. With the approval of the NTP and the requirement to undertake scenario analysis and impact assessments, it is expected that greater clarity will exist in the short term, especially as Provinces will be required to prepare their own action plans. However the level of detail that would be provided is unknown. This is a potential entry point of any engagement program through enhancing or supplementing technical expertise to generate impact mapping tools. Where data is not available the trends and local impacts could be identified by the use of remote sensing techniques through satellite data. The data sets may not be at good enough resolution in the past but over the last 10 years the data has become much more accessible, cheaper and better resolution.
2. Vulnerability – At present Phase I has only achieved high level mapping of the vulnerable communities within the recommended cities. The poor areas are evident in each city and these have commonly grown on land that has marginal capacity to be developed. Site visits have been undertaken to some of these areas, but specific data on socio economic indicators relating to poverty, income, and livelihood dependencies at the district or even commune levels would be more relevant to identify the vulnerable groups. In addition other complimentary data such as household numbers, construction type and construction fragility could also be gathered to assess the vulnerability of the local communities to the envisaged climate changes. Discussions with Government, academic and NGO stakeholders

in both Can Tho and Quy Nhon as well as a review of literature suggests that quite a lot of information is already known about the vulnerable communities within each of the cities at these levels but we were not able to source the data with the time and resources available to provide in depth analysis. The Health Department in Can Tho and the Civil Society in both cities mentioned their regular work at the commune level including information dissemination, workshops and community meetings. Disaster risk management and preparedness is also well developed in the risk prone areas in both cities at the commune level with clear lines of communication, action and responsibility when calamities occur. The level of data sharing that could be achieved with local government is unknown but if they buy into the engagement process then there could be quite a lot available to aid the study and assessment process. Where data does not exist, it could be gathered by undertaking field surveys, which may need to include the local government to overcome potential sensitivities regarding social impact type investigations.

8.4 Possible projects

It is considered in terms of the needs of the Cities reviewed in Vietnam that the possible projects that should be implemented revolve around three core themes:

- Awareness raising and capacity building;
- Technical expertise and skill transfer;
- Intervention (in terms of funding specific hard and soft projects).

Both raising awareness, capacity building, technical expertise and skill transfer could be implemented as one combined program with complementary outcomes. For example providing technical expertise through an International Advisory Group to government planning groups or academic institutions could be initiated and this would at the same time help raise awareness to the threats of climate change through the local media and through practical advice. Workshops or local seminars could be organized to explore the local impacts where opportunities for a cross-section of voices are heard on the needs and requirements of the people and communities. The need to respond to the current problems facing the cities needs to be addressed and future planning and development improved to include climate change scenarios. Incorporating these impacts into urban planning would transfer knowledge both within Government and to the wider community.

Within Can Tho and Quy Nhon there are opportunities for all three types of projects. Examples include:

- Increasing capacity and technical capability of city planning departments through an International Advisory Panel;
- Providing or supplementing resources and expertise for Scenario Analysis for local impact assessments;
- Providing technical assistance to feed into short and long term Master Planning;
- Raising awareness of vulnerable communities – note there is already quite a lot of work underway in Vietnam on this aspect and greater results may be achieved by aiming at a higher level entry point;
- Providing technical expertise or building capacity of academic institutions, either in the form of human or financial resources with grants and or investment in certain types of teaching courses or research activities ;
- Investing financial resources into more sustainable housing construction, or expertise to provide guidance on strengthening building codes.

- Reviewing the success of the Disaster Management Plan implementation and identifying the key success factors in this scheme to understand and allow effective replication of this initiative for the Climate Change policy in Vietnam.

It must be recognized that in Vietnam the national government has implemented an initiative to incorporate Climate Change into the various provincial and city government levels. This initiative needs scenarios to be formulated for each region and province. There are likely to be opportunities to assist this scenario development process both at city as well as province level. The use of an expert advisor panel to assist the assessment of the risks, threats and opportunities of each of the cities from climate change could be well received and kick start the engagement process.

Data is crucial in developing realistic scenarios at the local level. Funding could be sought to gather data through archive satellite coverage to assess the local level changes already experienced to identify the current and past trends to develop rigorous robust scenarios for future planning and development.

There were some interesting quotes which came out of the stakeholder meetings which we believe provides a flavor of the issues facing the cities and what potential projects could be included:

- *“it takes a lot of time to protect from the effects of climate change, “step by step” is needed to raise awareness”*
- *“Know clearly what the problem is, but how to solve the problem is the question”*
- *“Need to cooperate to solve the problem”*
- *“Responses are reactive and not proactive”*
- *“Aware of the impacts, but many short term needs to balance against”*

The key theme is the uncertainty of the impacts created by climate change and how to address them. Any program which aims to address this uncertainty would be of significant benefit and we believe would be well received. Programs that enhance technical or planning expertise (i.e. that build capacity) provide far greater returns as the higher level intervention diffuses out into the wider community through the media and improved understanding by all. It also provides opportunity for replication in the majority of cities in Vietnam, as well as other countries in the region.

9 Conclusions

9.1 Cross-cutting themes

Following presentations held in London by each of the CAPs, a number of key cross cutting themes were noted:

1. Water related issues – whether that has to do with too much water (flooding), too little (water supply and drought), or water quality (saline intrusion);
2. Vulnerability – in all countries the vulnerable are the poor who do not have the resources to adapt or cope to the effects of climate change, and in nearly all cases are living in less climate change resilient housing in the areas often most impacted by its impacts;
3. Awareness – there is a lack of awareness in the longer term as to what the impacts may be, but in fairness, this comment would apply in general globally;
4. Coping capacity – all cities have a vulnerable community that had had a lifetime of experiences dealing with impacts through the means they have available at hand.

A program that incorporated objectives to address these underlying themes would be replicable across countries.

9.2 Suggested approach

The suggested approach for Vietnam moving into Phase II involves a number of steps.

1. **Certainty** - The first and most critical step is for the Rockefeller Foundation to make a commitment to a city(s). This provides certainty and in turn allows the program to move forward freely unhindered. Stakeholder meetings were always conducted with continuous reiteration that Phase I was a scoping stage only, and that similar investigations were going on in other countries throughout Asia. There was no certainty that any city would be selected. This approach was essential for minimising expectations, but at the same time, it hindered any real connection with stakeholders.
2. **Site Visit** - Once a commitment is made, it would be worthwhile for the Rockefeller Foundation to take a site visit to the selected city, to get a sense of conditions on the ground and the character of the city. It would also be useful to undertake some preliminary meetings with a few key stakeholders in the city. Careful thought is required as to who would be the most appropriate. A Rockefeller meeting with stakeholders will raise expectations and if later that stakeholder was not engaged as a partner, it may be problematic. However meeting with some Government officials would be useful as any program would require their approval regardless, and it would give “face” to the whole process which is essential in Asian culture.
3. **Vulnerability mapping** - detailed mapping of vulnerable areas in the city is required to assist in determining where and what a potential program could target. This step is an essential one that not only helps shape the entire program, it also helps guide the program at the early stage where uncertainty of approach exists. By mapping the vulnerable communities in detail, clarity is given to where and who are the vulnerable communities in the cities, and what are the issues facing them. This in turn provides insights into the bigger picture questions of what are the issues facing the vulnerable, and how might the uncertainty surrounding these issues be resolved. Identifying where this uncertainty lies leads to what the potential program could be. It would be fairly certain that a number of potential programs would be identified, but knowing their linkages with the vulnerable allows comparisons of which potential programs yield the greatest benefit to the vulnerable. This could be identified using standard cost benefit analysis techniques. The final benefit of vulnerability mapping is it would

facilitate the identification of potential partners. As investigations progress, relevant experts will be highlighted and those of relevance to a preferred program could be engaged. Vulnerability should also target major infrastructure and the basic needs of the cities. Indeed food supply, water supply, energy supply, flood risks etc should also be considered at the surrounding province as well as local commune level.

4. **Impact assessment** – undertaking impact assessments of the city from the effects of climate change for the vulnerable and marginal communities. Build robust and defensible scenarios for imminent, mid term and long term climate changes. Include sea level rise, increasing intensity and occurrence of severe storms, higher winds, increased rainfall, drought prone areas, saline intrusion, coastal erosion, increased groundwater extraction and increasing temperature are all real impacts facing cities in Vietnam. Impact assessments would clearly draw the link to the vulnerable. An additional point noted during the stakeholder meetings is that in general, many were unsure what impacts are really caused by climate change. Impacts would often be cited as being driven by climate change, but it is unclear if that really is the case as there can be many other contribution factors sometimes not related to climate change. For example, saline intrusion could reflect over abstraction of groundwater which could be linked to increased demand for cooling but could also be linked to increased pollution in the rivers driving people to seek cleaner water underground. Sea level rise as well as reduced river flows through up catchment water draw off could also be the main driver. This ambiguity surrounding the real impacts of climate change could be addressed by inclusion of an international technical advisory panel to supplement local capacity and help identify the real climate related impacts that exist in the city.
5. **Engagement of a local partner** – Engagement of a local partner(s) is critical to allowing access to local networks and sources of information. The local partner needs to be respected in the city in which they operate and they need to be as impartially connected to the ruling government as possible while still retaining the capacity to engage quickly and efficiently. As a word of caution, while local partners have strengths, they also have weaknesses and this would need to be carefully managed by the Rockefeller Foundation. These weaknesses include steering the study in directions that suit their interests or even expertise. For example, environmental stakeholders from government or academic institutions may tend to focus on environmental rather than urban issues. They may also be limited with the advice they can offer by their ability to work in the future as consultants to the government.
6. **Independent Cross Check / Validation** – it would be very useful to approach some of the other large donors at an official level and understand their perspectives in terms of pitfalls and challenges of operating in Vietnam. DANIDA is an obvious choice given the many large investments they have undertaken. Their feedback would be invaluable in identifying how to structure a program, physically, legally and financially in order to achieve successful outcomes.

Vietnam is at an interesting stage in the development of its national level policy where it appears to be moving beyond the rhetoric and evolving into the implementation stage of its climate change policy. Most importantly, it is being driven by political will – a significant factor in a centrally planned political environment. Of all the countries being studied in Phase I, Vietnam is unique in its political system. Such a system can be both an advantage and a challenge. Centrally planned systems make replication far more easier, yet their rigidity can also be a challenge. But this level of political uniqueness relative to the other Asian countries makes for an interesting comparison of the program on an international scale. Vietnam is faced with the realities of climate change and there is a real need to initiate action now. It would be hard to imagine that any well planned and culturally sensitive international assistance program would not be appreciated, as evidenced by the significant international activity in the country already. As one Government stakeholder mentioned “if it is a win - win situation, why would we want to stop it?”

The ACCCRN initiative is moving from Phase I into Phase II and as it does so, it gains clarity. Where before there were eight cities, there are now two recommended cities (Can Tho and Quy Nhon), and a potential third (Da Nang) for replication. Insights into each of the cities have been provided, and a number of steps are recommended to not only further progress the understanding in the city, but to in turn help define potential programs. Based on the work undertaken in Phase I, there is no reason identified why a successful program could not be implemented in Vietnam.

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Appendix A – City Selection Tool

Criteria	Comment
Why? Exposure to and awareness of Climate Change Risk	
General overall population exposure to climate change impacts (Score / %)	
Overall exposure of poor population to climate change impacts (Score / %)	
Awareness of climate change in each city area	
Ability either financial or otherwise of city to tackle climate change impacts	
Existing programmes to tackle climate change in each city	
Level of existing urban planning that takes account of climate change	
Level of future urban planning that takes account of climate change	
Increased potential urbanisation in marginal land areas susceptible to climate change	
How and Who? Political Will and Stability in Each City	
Sustainability in form of ongoing resources, (financial / skills and awareness)	
Election / political cycle and stability for climate change policies (ie newly elected officials or end of term)	
Fiscal priorities – (ie financial constrained or unconstrained)	
Ranking of Climate Change within the City Governments priorities	
Ability to implement Government policies for climate change, (financial / skills constraints ?)	
How and who? Governance of City	
Degree of Autonomy by local Government (independence)	
Degree of Influence (ability to make things happen)	
Degree of transparency of decision making	
Clear roles and responsibilities in Government to tackle climate change	
How and who? Competency and capacity for Climate Change Initiatives	
Capability and capacity to implement climate change related projects (water, food supply, flooding, urban planning, disaster management etc)	
Support and interactions with the public and stakeholders (civil society)	
Existing institutional capacity and relationships between sectors	
Responsiveness and ability to support change in goals and ideals	
Who? Multiplicity of Actors	
Willingness to involve stakeholders (other Govt Dept, NGO's Poor Communities etc) in decision process	
Who? City Champions	
Presence of individual/institution/actor in each city that can implement Climate Response Initiatives	

Appendix B Stakeholder Feedback

[REMOVED]

Appendix C NGOs by Province

Quang Binh Province - Dong Hoi

NGOs Present		Scope	Program Budget
Amcross	American Red Cross	<ol style="list-style-type: none"> 1. Achieve higher enrollment and attendance rates, with an emphasis on girls. 2. Improve student achievement levels 3. Improve maternal, child and student health and nutrition 4. Expand infrastructure and community support 5. Build programme sustainable 	US\$5,000,000
CRS/Vietnam	Catholic Relief Services	Support project initiated by local partner in the area of education, including special programmes for disabled children and mine risk awareness in schools, agriculture/rural enterprise development, HIV/AIDS, Avian Influenza and emergency mitigation.	US\$2,000,000
CBM	CBM International / Christoffel Blindenmission	Supports provision of medical, education and rehabilitation services for persons with visual disabilities as well as people with other disabilities	US\$840,000
CPI	Clear Path International	Develop sustainable mine/UXO casualty assistance in cooperation with local and regional implementation partners to reverse the legacy of war through support for medical, economic and social reintegration services.	US\$200,000
CI	Compassion International	Focus on poor children and their education, by providing scholarship and holding summer camp	US\$450,000
Counterpart	Counterpart International	To helping people in the areas of community development, private enterprise, environmental resource management, healthcare, and humanitarian relief.	US\$1,700,000
EMW	East meets West Foundation	Implementing high-quality programs and projects that make a lasting impact on thousands of children and families living in poverty.	US\$12,207,759
FFI	Fauna & Flora International – Vietnam Conservation Support Programme	Work includes scientific research, monitoring and management of highly endangered species, support for protected areas management, strategic conservation planning and capacity building, conservation awareness/ education and promoting and developing sustainable alternative income generation.	US\$ 500,000
FMV	Foundation for Micro projects in Vietnam	To help alleviate poverty in rural areas of Vietnam, finances small-scale rural development projects that can have an immediate impact on the livelihoods of local population.	US\$250,000
FHF	Fred Hollows Foundations	Improve the accessibility of cataract surgery at the provincial and district level as well as availability of eye care services at community levels, build capacity for eye doctors/nurses at local health centers and raise awareness of eye care for people in rural areas.	US\$914,000
FOHF	Friends of Hue Foundation	Provide assistance for impoverished people and victims of natural disasters in Thua Thien-Hue. Focus on children, health, education and income generation	US\$50,000
ICCO			

NGOs Present		Scope	Program Budget
LSN	Landmine Survivors Network	To assist survivors and amputees to access health care, rehabilitation and psychosocial support as well as economic opportunities, livelihood, job placement and income generation.	US\$201,000
MAG	Mines Advisory Group	Employ male and female civilians to conduct UXO clearance.	US\$2,000,000
PI	Pathfinder International	To improve reproductive health care through comprehensive initiatives that build capacity and respond to the needs of the community	US\$2,500,000
Plan	Plan in Vietnam	Work directly with communes and villages to identify and address the key issues that affect children.	US\$10,500,000
SNV	Netherlands Development Organization	Strengthen the capacity of Vietnamese organizations to improve the living conditions and position of the poorest people in Vietnam.	Unknown
VCF	Vietnam Children's Fund	Build an elementary school in each of Vietnam's 64 provinces	US\$345,500
VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown
WUSC/EUMC	World University Service of Canada / Entraide Universitaire Mondiale du Canada	Focus on capacity building in post-secondary education institutions and increase the enrollment and success rate of ethnic minority children in primary school.	US\$450,000
WWF	Worldwide Fund for Nature	To promote the conservation and effective management of priority forest landscape, freshwater ecosystem, coastal and marine ecosystems, viable populations of selected species of special concern.	Unknown

Hai Phong Province – Hai Phong

NGOs Present		Scope	Program Budget
AAV	ActionAid International in Vietnam	Working with the poor and marginalised to help them secure their rights, especially people living in difficult, mountainous and even urban areas	US\$ 3,396,600
AED	Academy for Educational Development	To develop and implement HIV/AIDS prevention education and policy development activities.	US\$300,000
AFAP	Australian Foundation for the Peoples of Asia and the Pacific	Work toward Vietnam's sustainable development, local poverty alleviation and improved health and resource management through integrated strategies.	US\$ 800,000-1,00,000
AFFI	De Stichting Affiliate – The Affiliate Foundation	Aims at advising on implementing projects in the fields of education and social welfare.	US\$250,000
AIDA	AIDA Association	Focus on three sectors: 1. Rural Development (Design Vietnamese territory based rural development strategy) 2. Aquaculture Development 3. Street Children Programs	US\$321,495
CARE	CARE international in Vietnam	Work in partnerships to address poverty and inequity, build a just and responsive society, and provide future generations with a healthy environment.	US\$4,400,000
CBM	CBM International / Christoffel Blindenmission	Supports provision of medical, education and rehabilitation services for persons with visual disabilities as well as people with other disabilities	US\$840,000
ELI	English Language Institute	To provide English teaching personnel for institutions throughout Vietnam who want native speakers of English. Also have limited number of business and IT instructor.	US\$400,000
FFI	Fauna & Flora International – Vietnam Conservation Support Programme	Work includes scientific research, monitoring and management of highly endangered species, support for protected areas management, strategic conservation planning and capacity building, conservation awareness/ education and promoting and developing sustainable alternative income generation.	US\$ 500,000
Ford Foundation	The Ford Foundation	The foundation makes grants to appropriate Vietnamese and non-Vietnamese agencies and institutions working for the benefit of Vietnam.	US\$9,000,000
HoH	Hands of Hope	Working in Vietnam to improve health, education and economic conditions of disabled children and families	US\$250,000
HPI	Heifer International	To bring holistic development to poor communities, and providing animal or credit for more than 10000 families.	US\$708,650
IDE	International Development Enterprises	To employ market principles to strike at the roots of rural poverty in Vietnam.	US\$300,000

NGOs Present		Scope	Program Budget
Ipas	Ipas Organisation	Increase the effectiveness of reproductive health services in Vietnam, in terms of the equality and range of services, through the provision of technical assistance in training and service delivery	US\$400,000
L'Appel	Association L'APPEL- aide aux enfants victims de conflits	<ol style="list-style-type: none"> 1. Supply of essential drugs to pediatrics services in hospitals and investigation of medical devices 2. Training sessions for obstetricians, paediatricians, midwives, and nurses 3. Restoration and modernization of old infirmary buildings. 4. Fostering of children and school attendance. 5. Water supply installation in the south central mountainous areas. 	US\$226,000
LVEP	Living Values Education Program	To provide guiding principles and tools for the development of the whole person, recognizing that the individuals is comprised of physical, intellectual, emotional and spiritual dimensions	US\$25,000
ORBIS	ORBIS International	To preserve and restore sight by strengthening the capacity of local partners in their effort to prevent and treat blindness	US\$1,337,018
PACT	PACT, Inc.	Award grant and provide technical and management assistance to international and Vietnamese NGOs engaged in voluntary counseling and testing; HIV prevention; care and support for peoples living with HIV, including orphans and vulnerable children; treatment, including antiretroviral therapy; and policy/systems strengthening.	US\$5,345,940
PI	Pathfinder International	To improve reproductive health care through comprehensive initiatives that build capacity and respond to the needs of the community	US\$2,500,000
Pop Council	Population Council	To address key government priorities in public health, especially reproductive health and population	US\$1,200,000
PSI/Vietnam	Population Services International/Vietnam	Design Intervention targeting individuals in most at-risk populations for HIV and AIDS.	US\$1,000,000
SC UK	Save the Children UK	Focus on protecting and promoting the rights of children	US\$1,500,000
SC US	Save the Children US	Implement program in health, HIV/AIDS, education, economic opportunities, and emergency preparedness and response	US\$2,500,000
TAF	The Asia Foundation	Advance International integration economic, economic growth and private sector development, good governance and legal reform, and improved bilateral relations with the United States.	US\$1,000,000
TASC	The Alliance for Safe Children	Reduce the epidemic of child deaths and disabilities resulting from preventable injuries.	Unknown
VCF	Vietnam Children's Fund	Build an elementary school in each of Vietnam's 64 provinces	US\$345,500

NGOs Present		Scope	Program Budget
VSO	Voluntary Service Overseas	Focus on inclusive education, secure livelihoods and HIV/AIDS areas with supporting partners	US\$500,000
WPF	World Population Foundation/ Stichting Wereld en Bevolking	Collaborates with local organizations in Vietnam to improve sexual and reproductive health of women and young people.	US\$500,000
WUSC/EUMC	World University Service of Canada / Entraide Universitaire Mondiale du Canada	Focus on capacity building in post-secondary education institutions and increase the enrollment and success rate of ethnic minority children in primary school.	US\$450,000
WVI	World Vision International	Improve quality of life of poor people through improving health care, agricultural production, microfinance, education, child rights protection, and emergency relief.	US\$16,000,000

Khanh Hoa Province - Phan Thiet

NGOs Present			Scope	Program Budget
1.	AED	Academy for Educational Development	To develop and implement HIV/AIDS prevention education and policy development activities.	US\$300,000
2.	Atlantic	The Atlantic Philanthropies (Vietnam) Ltd.	Focus on grant-making in the health and higher education sectors.	US\$25,000,000
3.	BSTTW	Burn Survivors Throughout the World, Inc.	Offers support, advocacy, medical equipment and education needed for people that are burned and their family members in order to rebuild a life	US\$10,000
4.	COPI	Children of Peace International	To serve the children and people of Vietnam by developing capacity of the people to help themselves.	US\$140,000
5.	Counterpart	Counterpart International	To helping people in the areas of community development, private enterprise, environmental resource management, healthcare, and humanitarian relief.	US\$1,700,000
6.	FHI	Family Health International	Collaborate with Ministry of Health and provincial partners to provide HIV prevention, care and treatment services, and related surveillance and research in Vietnam.	US\$4,500,000
7.	Ford Foundation	The Ford Foundation	The foundation makes grants to appropriate Vietnamese and non-Vietnamese agencies and institutions working for the benefit of Vietnam.	US\$9,000,000
8.	Ipas	Ipas Organisation	Increase the effectiveness of reproductive health services in Vietnam, in terms of the equality and range of services, through the provision of technical assistance in training and service delivery	US\$400,000
9.	L'Appel	Association L'APPEL- aide aux enfants victims de conflits	6. Supply of essential drugs to pediatrics services in hospitals and investigation of medical devices 7. Training sessions for obstetricians, paediatricians, midwives, and nurses 8. Restoration and modernization of old infirmary buildings. 9. Fostering of children and school attendance. 10. Water supply installation in the south central mountainous areas.	US\$226,000
10.	MCNV	Medisch Comite Nederland - Vietnam	Support community-managed health development to strengthen the sustainable development of communities through provincial, district and commune health systems	US\$2,000,000
11.	MSI	Marie Stopes International	Work to improve reproductive health in Vietnam	US\$600,000
12.	SC US	Save the Children US	Implement program in health, HIV/AIDS, education, economic opportunities, and emergency preparedness and response	US\$2,500,000
13.	TAF	The Asia Foundation	Advance International integration economic, economic growth and private sector development, good governance and legal reform, and improved bilateral relations with the United States.	US\$1,000,000
14.	VeT	Villes en Transition	Aim to improve the living conditions of urban neighbourhoods by a combination of local development and urban upgrading.	US\$150,000
15.	VIA	Volunteers in Asia	Provide English teachers as well as English resource volunteers	US\$160,000

NGOs Present			Scope	Program Budget
16.	VSO	Voluntary Services Overseas	Focus on inclusive education, secure livelihoods and HIV/AIDS areas with supporting partners	US\$500,000
17.	VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown
18.	WPF	World Population Foundation/ Stichting Wereld en Bevolking	Collaborates with local organizations in Vietnam to improve sexual and reproductive health of women and young people.	US\$500,000
19.	WUSC/EUMC	World University Service of Canada / Entraide Universitaire Mondiale du Canada	Focus on capacity building in post-secondary education institutions and increase the enrollment and success rate of ethnic minority children in primary school.	US\$450,000

Thua Thien Hue Province - Hue

NGOs Present			Scope	Program Budget
1.	ADRA	Adventist Development and Relief Agency in Vietnam	To improve the quality of life for the poorer segments of Vietnam's population with an emphasis on minorities and remote groups.	US\$6,104
2.	Atlantic	The Atlantic Philanthropies (Vietnam) Ltd.	Focus on grant-making in the health and higher education sectors.	US\$25,000,000
3.	AVI	Australian Volunteers International	Sponsoring the assignments of 17 volunteer development workers working on the sectors of English language teaching, forestry, animal health, natural resource management, vocational education, governance, income generation and media and communications.	US\$206,250
4.	AVSF	Agronomes & Veterinaires Sans Frontieres	Works for the sustainable improvement of rural livelihoods through the development of agriculture	US\$500,000
5.	BAJ	Bridge Asia Japan	To promote understanding of the environmental impact of rapid economic growth and to find more appropriate technologies/solutions. To encourage self-support by the disabled through vocational training and variety of activities.	US\$92,900
6.	CA	Children Action, Fondation pour la protection de l'Enfance et l'Action humanitaire	Funding and organizing essential surgical operations, covering the schooling cost for hundreds of underprivileged pupils, as well as financing the building process of new schools and support a group of underprivileged blind center	US\$250,000
7.	CBM	CBM International / Christoffel Blindenmission	Supports provision of medical, education and rehabilitation services for persons with visual disabilities as well as people with other disabilities	US\$840,000
8.	CECI	Canadian Center for International Studies and cooperation / Center Canadien d'Etude et de Cooperation International	CECI's range of experience covers diverse area including: capacity building of local government and rural development institutions to plan and implement development projects following participatory approaches; support and monitoring the decentralization of services to local government bodies and communities; community-based economic development and rural infrastructure; agriculture planning and marketing; micro-finance and cooperative development; community-based disaster management, natural resource management and people-based management of urban and cultural heritage; and capacity building of services delivery in education, health and nutrition.	US\$1,800,000
9.	CHF	CHF – Partners in Rural Development	Environment protection, gender equity, sound natural resource management practices and community ownership are cross-cutting themes in all CHF's activities from staff to field.	US\$350,000
10.	CI	Compassion International	Focus on poor children and their education, by providing scholarship and holding summer camp	US\$450,000

NGOs Present			Scope	Program Budget
11.	CPI	Clear Path International	Develop sustainable mine/UXO casualty assistance in cooperation with local and regional implementation partners to reverse the legacy of war through support for medical, economic and social reintegration services.	US\$200,000
12.	CRS/Vietnam	Catholic Relief Services	Support projects initiated by local partners in the areas of education, including special programmes for disabled children and mine risk awareness in schools, agriculture/rural enterprise development, HIV/AIDS, Avian Influenza, and emergency mitigation.	US\$2,000,000
13.	D.O.V.E Fund			
14.	DW	Development Workshop	Establish community capacity to reduce vulnerability to economic losses caused by storm damage to houses	US\$300,000
15.	ELI	English Language Institute	To provide English teaching personnel for institutions throughout Vietnam who want native speakers of English. Also have limited number of business and IT instructor.	US\$400,000
16.	EMW	East meets West Foundation	Implementing high-quality programs and projects that make a lasting impact on thousands of children and families living in poverty.	US\$12,207,759
17.	ENDA in Vietnam	Environmental Development Action in the Third World – Vietnamese Antenna	Follows 6 main strategic lines of action: 1. active participation of target-groups (urban poor, ethnic minorities) in the design, planning, implementation and evaluation of projects 2. an integrated action-research-training process 3. constant reference to environmental issues 4. prioritizing local or national resources and competencies 5. cooperation with local authorities, mass organizations, research institutes and other INGOs 6. exchange of experiences within Vietnam and with other Asian countries	US\$300,000
18.	FHF	Fred Hollows Foundations	Improve the accessibility of cataract surgery at the provincial and district level as well as availability of eye care services at community levels, build capacity for eye doctors/nurses at local health centers and raise awareness of eye care for people in rural areas.	US\$914,000
19.	FMV	Foundation for Micro projects in Vietnam	To help alleviate poverty in rural areas of Vietnam, finances small-scale rural development projects that can have an immediate impact on the livelihoods of local population.	US\$250,000
20.	FOHF	Friends of Hue Foundation	Provide assistance for impoverished people and victims of natural disasters in Thua Thien-Hue. Focus on children, health, education and income generation	US\$50,000
21.	Ford Foundation	The Ford Foundation	The foundation makes grants to appropriate Vietnamese and non-Vietnamese agencies and institutions working for the benefit of Vietnam.	US\$9,000,000
22.	Helvetas	Helvetas - Swiss Association for International Cooperation	Work in areas of Sustainable Management of Natural Resources, Education and Culture, Civil Society and the State and Infrastructure in Rural Areas.	US\$3,000,000

NGOs Present			Scope	Program Budget
23.	ICCO			
24.	IDE	International Development Enterprises	To employ market principles to strike at the roots of rural poverty in Vietnam.	US\$300,000
25.	MCNV	Medisch Comite Nederland - Vietnam	Support community-managed health development to strengthen the sustainable development of communities through provincial, district and commune health systems	US\$2,000,000
26.	MEDRIX	Medical Education, Development Resources International Exchange	Work primarily in central Vietnam providing medical and provincial leaders with support in education, safe water development and professional development.	Unknown
27.	NAV	Nordic Assistance to Vietnam	Aims to strengthen and empower local communities, increasing their competence and capacity through community based development.	US\$860,000
28.	ORBIS	ORBIS International	To preserve and restore sight by strengthening the capacity of local partners in their effort to prevent and treat blindness	US\$1,337,018
29.	PI	Pathfinder International	To improve reproductive health care through comprehensive initiatives that build capacity and respond to the needs of the community	US\$2,500,000
30.	Plan	Plan in Vietnam	Work directly with communes and villages to identify and address the key issues that affect children.	US\$10,500,000
31.	Pop Council	Population Council	To address key government priorities in public health, especially reproductive health and population	US\$1,200,000
32.	SC US	Save the Children US	Implement program in health, HIV/AIDS, education, economic opportunities, and emergency preparedness and response	US\$2,500,000
33.	SCS	Save the Children Sweden	Focus on children's rights, especially children's participation	US\$934,000
34.	SEAR	South-East Asian Relief	Provide spiritual and material help to many needy children in Vietnam	US\$65,000
35.	SIF	Singapore International Foundation	Strengthens people to people relations and promotes goodwill between Singapore and countries of the world through international volunteerism and networking program.	US\$326,117
36.	SNV	Netherlands Development Organization	Strengthen the capacity of Vietnamese organizations to improve the living conditions and position of the poorest people in Vietnam.	Unknown
37.	SODI	Solidarity Service International / Solidaritaetsdienst International e.V.	Implement integrated program for de-mining, UXO clearance and resettlement in Vietnam	US\$620,000
38.	SRC	Spanish Red Cross	Cooperating in several programmes, including institutional building, water and sanitation, medical aid, disaster preparedness/management, vocational training and micro-credit.	US\$400,000

NGOs Present			Scope	Program Budget
39.	TAF	The Asia Foundation	Advance International integration economic, economic growth and private sector development, good governance and legal reform, and improved bilateral relations with the United States.	US\$1,000,000
40.	TASC	The Alliance for Safe Children	Reduce the epidemic of child deaths and disabilities resulting from preventable injuries.	Unknown
41.	VCF	Vietnam Children's Fund	Build an elementary school in each of Vietnam's 64 provinces	US\$345,500
42.	VIA	Volunteers in Asia	Provide English teachers as well as English resource volunteers	US\$160,000
43.	VNHELP	Vietnam Health, Education, and Literature Projects	Assisting children, families and communities in Vietnam in areas of education and health care	US\$600,000
44.	VSO	Voluntary Services Overseas	Focus on inclusive education, secure livelihoods and HIV/AIDS areas with supporting partners	US\$500,000
45.	VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown
46.	WPF	World Population Foundation/ Stichting Wereld en Bevolking	Collaborates with local organizations in Vietnam to improve sexual and reproductive health of women and young people.	US\$500,000
47.	WVI	World Vision International	Improve quality of life of poor people through improving health care, agricultural production, microfinance, education, child rights protection, and emergency relief.	US\$16,000,000
48.	WWF	Worldwide Fund for Nature	To promote the conservation and effective management of priority forest landscape, freshwater ecosystem, coastal and marine ecosystems, viable populations of selected species of special concern.	Unknown

Da Nang Municipality

NGOs Present			Scope	Program Budget
1.	Atlantic	The Atlantic Philanthropies (Vietnam) Ltd.	Focus on grant-making in the health and higher education sectors.	US\$25,000,000
2.	AVI	Australian Volunteers International	Sponsoring the assignments of 17 volunteer development workers working on the sectors of English language teaching, forestry, animal health, natural resource management, vocational education, governance, income generation and media and communications.	US\$206,250
3.	CARE	CARE international in Vietnam	Work in partnerships to address poverty and inequity, build a just and responsive society, and provide future generations with a healthy environment.	US\$4,400,000
4.	CECI	Canadian Center for International Studies and cooperation / Center Canadien d'Etude et de Cooperation International	CECI's range of experience covers diverse area including: capacity building of local government and rural development institutions to plan and implement development projects following participatory approaches; support and monitoring the decentralization of services to local government bodies and communities; community-based economic development and rural infrastructure; agriculture planning and marketing; micro-finance and cooperative development; community-based disaster management, natural resource management and people-based management of urban and cultural heritage; and capacity building of services delivery in education, health and nutrition.	US\$1,800,000
5.	CoF	Xuan, Children of the Future	It is an humanitarian association which aims to help street children in Vietnam	US\$60,000
6.	Counterpart	Counterpart International	To helping people in the areas of community development, private enterprise, environmental resource management, healthcare, and humanitarian relief.	US\$1,700,000
7.	CPI	Clear Path International	Develop sustainable mine/UXO casualty assistance in cooperation with local and regional implementation partners to reverse the legacy of war through support for medical, economic and social reintegration services.	US\$200,000
8.	CoV	Children of Vietnam	Improving live of destitute, poor, orphan, handicapped and street children by providing dedicated assistance in health care, nutrition, education and housing to Vietnamese children aged birth to 18 years old.	US\$299,000
9.	EMW	East meets West Foundation	Implementing high-quality programs and projects that make a lasting impact on thousands of children and families living in poverty.	US\$12,207,759
10.	ENDA in Vietnam	Environmental Development Action in the Third World – Vietnamese Antenna	Follows 6 main strategic lines of action: 7. active participation of target-groups (urban poor, ethnic minorities) in the design, planning, implementation and evaluation of projects 8. an integrated action-research-training process 9. constant reference to environmental issues 10. prioritizing local or national resources and competencies 11. cooperation with local authorities, mass organizations, research institutes and other INGOs 12. exchange of experiences within Vietnam and with other Asian countries	US\$300,000

NGOs Present			Scope	Program Budget
11.	FHF	Fred Hollows Foundations	Improve the accessibility of cataract surgery at the provincial and district level as well as availability of eye care services at community levels, build capacity for eye doctors/nurses at local health centers and raise awareness of eye care for people in rural areas.	US\$914,000
12.	FHI	Family Health International	Collaborate with Ministry of Health and provincial partners to provide HIV prevention, care and treatment services, and related surveillance and research in Vietnam.	US\$4,500,000
13.	FIDR	Foundation for International Development/Relief	Conducting projects in the field of education, health, small-scale infrastructure and community development.	US\$200,000
14.	FPIA			
15.	GRET/PFR	Groupe de Recherches et d'Echanges Technologiques / Research and Technological Exchange Group	Support sustainable development based on the principles of social justice, equity and economic promotion, particularly interested in technological and institutional innovation that permit disadvantaged social groups to better meet their objectives in production, processing, marketing or consumption	US\$975,000
16.	HI	Handicap International	Work for the benefit of vulnerable people living in mountainous areas and people living with disabilities and their families.	US\$220,000
17.	HoH	Hands of Hope	Working in Vietnam to improve health, education and economic conditions of disabled children and families	US\$250,000
18.	HOLT	Holt International Children Services	Provide services for children displaced or at the risk of displacement	US\$450,000
19.	MSI	Marie Stopes International	Work to improve reproductive health in Vietnam	US\$600,000
20.	MI	Malteser International	With comprehensive programme including preventive health care, curative care and training components, Malteser aim to significantly improve the health situation of the poorer sections of society.	US\$159,414
21.	NAV	Nordic Assistance to Vietnam	Aims to strengthen and empower local communities, increasing their competence and capacity through community based development.	US\$860,000
22.	ORBIS	ORBIS International	To preserve and restore sight by strengthening the capacity of local partners in their effort to prevent and treat blindness	US\$1,337,018
23.	Plan	Plan in Vietnam	Work directly with communes and villages to identify and address the key issues that affect children.	US\$10,500,000
24.	Pop Council	Population Council	To address key government priorities in public health, especially reproductive health and population	US\$1,200,000
25.	SC UK	Save the Children UK	Focus on protecting and promoting the rights of children	US\$1,500,000
26.	SC US	Save the Children US	Implement program in health, HIV/AIDS, education, economic opportunities, and emergency preparedness and response	US\$2,500,000
27.	SEAR	South-East Asian Relief	Provide spiritual and material help to many needy children in Vietnam	US\$65,000
28.	SIF	Singapore International Foundation	Strengthens people to people relations and promotes goodwill between Singapore and countries of the world through international volunteerism and networking program.	US\$326,117

NGOs Present			Scope	Program Budget
29.	TAF	The Asia Foundation	Advance International integration economic, economic growth and private sector development, good governance and legal reform, and improved bilateral relations with the United States.	US\$1,000,000
30.	TASC	The Alliance for Safe Children	Reduce the epidemic of child deaths and disabilities resulting from preventable injuries.	Unknown
31.	VCF	Vietnam Children's Fund	Build an elementary school in each of Vietnam's 64 provinces	US\$345,500
32.	VNAH	Vietnam Assistance for the Handicapped	Focus on rehabilitation services and improving policies and programs for the disabled as well as the growing of local NGO sector in Vietnam	US\$500,000
33.	VNHELP	Vietnam Health, Education, and Literature Projects	Assisting children, families and communities in Vietnam in areas of education and health care	US\$600,000
34.	VSO	Voluntary Services Overseas	Focus on inclusive education, secure livelihoods and HIV/AIDS areas with supporting partners	US\$500,000
35.	VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown
36.	WPF	World Population Foundation/ Stichting Wereld en Bevolking	Collaborates with local organizations in Vietnam to improve sexual and reproductive health of women and young people.	US\$500,000
37.	WUSC/EUMC	World University Service of Canada / Entraide Universitaire Mondiale du Canada	Focus on capacity building in post-secondary education institutions and increase the enrollment and success rate of ethnic minority children in primary school.	US\$450,000
38.	WVI	World Vision International	Improve quality of life of poor people through improving health care, agricultural production, microfinance, education, child rights protection, and emergency relief.	US\$16,000,000

Can Tho Province – Can Tho

NGOs Present			Scope	Program Budget
1.	Atlantic	The Atlantic Philanthropies (Vietnam) Ltd.	Focus on grant-making in the health and higher education sectors.	US\$25,000,000
2.	CARE	CARE international in Vietnam	Work in partnerships to address poverty and inequity, build a just and responsive society, and provide future generations with a healthy environment.	US\$4,400,000
3.	DII	Dillon International	To provide funding and services for daily welfare through education and medical assistance for children in undeveloped countries. International adoption program to provide best possible lifetime care for homeless children.	US\$246,360
4.	FHI	Family Health International	Collaborate with Ministry of Health and provincial partners to provide HIV prevention, care and treatment services, and related surveillance and research in Vietnam.	US\$4,500,000
5.	HealthBridge	HealthBridge Foundation of Canada	Work in the area of tobacco control, reproductive health, nutrition, gender equity and HIV control	US\$500,000
6.	HKI	Helen Keller International	Establish program base on evidence and research in vision, health and nutrition.	US\$350,000
7.	HPI	Heifer International	To bring holistic development to poor communities, and providing animal or credit for more than 10000 families.	US\$708,650
8.	ORBIS	ORBIS International	To preserve and restore sight by strengthening the capacity of local partners in their effort to prevent and treat blindness	US\$1,337,018
9.	PACT	PACT, Inc.	Award grant and provide technical and management assistance to international and Vietnamese NGOs engaged in voluntary counseling and testing; HIV prevention; care and support for peoples living with HIV, including orphans and vulnerable children; treatment, including antiretroviral therapy; and policy/systems strengthening.	US\$5,345,940
10.	PI	Pathfinder International	To improve reproductive health care through comprehensive initiatives that build capacity and respond to the needs of the community	US\$2,500,000
11.	Pop Council	Population Council	To address key government priorities in public health, especially reproductive health and population	US\$1,200,000
12.	PSI/Vietnam	Population Services International/Vietnam	Design Intervention targeting individuals in most at-risk populations for HIV and AIDS.	US\$1,000,000
13.	TAF	The Asia Foundation	Advance International integration economic, economic growth and private sector development, good governance and legal reform, and improved bilateral relations with the United States.	US\$1,000,000
14.	Tdh	Terre des homes Foundation - Lausanne	With a special focus on providing direct aid to street children	US\$312,000

NGOs Present			Scope	Program Budget
15.	Trias	TRIAS VZW	Work with local partners who aims to strengthen the organization of farmers and entrepreneurs, improve their access to appropriate services and micro-finance and contribute to local development processes.	US\$66,000
16.	VIA	Volunteers in Asia	Provide English teachers as well as English resource volunteers	US\$160,000
17.	VNAH	Vietnam Assistance for the Handicapped	Focus on rehabilitation services and improving policies and programs for the disabled as well as the growing of local NGO sector in Vietnam	US\$500,000
18.	VNHELP	Vietnam Health, Education, and Literature Projects	Assisting children, families and communities in Vietnam in areas of education and health care	US\$600,000
19.	VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown
20.	WUSC/EUMC	World University Service of Canada / Entraide Universitaire Mondiale du Canada	Focus on capacity building in post-secondary education institutions and increase the enrollment and success rate of ethnic minority children in primary school.	US\$450,000

Binh Dinh - Quy Nhon

NGOs Present			Scope	Program Budget
1.	AVSF	Agronomes & Veterinaires Sans Frontieres	Works for the sustainable improvement of rural livelihoods through the development of agriculture	US\$500,000
2.	CARE	CARE international in Vietnam	Work in partnerships to address poverty and inequity, build a just and responsive society, and provide future generations with a healthy environment.	US\$4,400,000
3.	CECI	Canadian Center for International Studies and cooperation / Center Canadien d'Etude et de Cooperation International	CECI's range of experience covers diverse area including: capacity building of local government and rural development institutions to plan and implement development projects following participatory approaches; support and monitoring the decentralization of services to local government bodies and communities; community-based economic development and rural infrastructure; agriculture planning and marketing; micro-finance and cooperative development; community-based disaster management, natural resource management and people-based management of urban and cultural heritage; and capacity building of services delivery in education, health and nutrition.	US\$1,800,000
4.	ELI	English Language Institute	To provide English teaching personnel for institutions throughout Vietnam who want native speakers of English. Also have limited number of business and IT instructor.	US\$400,000
5.	EMW	East meets West Foundation	Implementing high-quality programs and projects that make a lasting impact on thousands of children and families living in poverty.	US\$12,207,759
6.	FHF	Fred Hollows Foundations	Improve the accessibility of cataract surgery at the provincial and district level as well as availability of eye care services at community levels, build capacity for eye doctors/nurses at local health centers and raise awareness of eye care for people in rural areas.	US\$914,000
7.	HKI	Helen Keller International	Establish program base on evidence and research in vision, health and nutrition.	US\$350,000
8.	Nocross	Norwegian Red Cross in Vietnam	Provide local Red Cross chapters with <ol style="list-style-type: none"> 1. equipment, materials and facilities; 2. training, workshops, networking activities and events; 3. small-scale disaster-preparedness & community-development projects 	US\$220,000
9.	VCF	Vietnam Children's Fund	Build an elementary school in each of Vietnam's 64 provinces	US\$345,500
10.	VNAH	Vietnam Assistance for the Handicapped	Focus on rehabilitation services and improving policies and programs for the disabled as well as the growing of local NGO sector in Vietnam	US\$500,000
11.	VNHELP	Vietnam Health, Education, and Literature Projects	Assisting children, families and communities in Vietnam in areas of education and health care	US\$600,000
12.	VSA	Volunteer Service Abroad New Zealand	Focus on the central region from a base on Quy Nhon, concentrating on the three sectors of health, education, agriculture and rural development, as well as marine protection and conservation.	US\$300,000
13.	VVAF	Vietnam Veterans of America Foundation	Active in 18 provinces with a variety of assistance programmes, focus in area of rehabilitation, mental health etc.	Unknown

Appendix D Disaster Risk Management

D1.1 Governance, Disaster Management and Climate Change Adaptation

The following structure, while specific to Hue, is generally applicable to Can Tho and Quy Nhon.

D1.1.1 Hue Governance

Hue is a city under the administration of Thua Thien Hue province and all planning related to disasters and climate risk reduction activities of the city follow the planning of the province. The following sections therefore, focus at the provincial level.

Thua Thien Hue Provincial Committee for Flood & Storm Control and Search & Rescue is the focal provincial agency, established under the decision of the People's Committee of Thua Thien Hue Province. It is responsible for disaster management and search and rescue activities. The flood and storm control is the responsibility of the technical staff in the Department of Agriculture and Rural Development (DARD) while search and rescue is the responsibility of the provincial defence department. This helps to streamline the leadership and facilitate a more effective decision making process in case of emergencies. There are two main provincial level entities that are actively involved in undertaking disaster management and climate change adaptation related activities:

- The Provincial Committee for Flood and Storm Control (PCFCS) and;
- The Provincial Defence Department.

D1.1.2 Provincial Committee for Flood and Storm Control (PCFSC)

The PCFSC committee comprises around 35 staff members, all which are part-time except for 5 members that are involved in administrative support (Field Survey, 2005). The Vice Chairman of the Provincial People's Committee is the Chairperson of the PCFSC, the Director of DARD is the resident member and the Head of the local Defence Force leads search and rescue operations. There are other members are from relevant departments and organizations including Fisheries, Transportation, Labor and Social Welfare, Red Cross, media (television and radio) and Hydrometeorology. The main tasks of the committee are managed by the CFSC office by 12 part-time staff members (staff include 1 manager, 6 technical, 1 administration, 2 finance assistants and 1 driver). There are only 4 staff members in the CFSC office whose base salary is subsidized by the provincial budget while the rest are externally contracted (Figure 23).

The approach for disaster management is listed below (Table 10).

Table 23 Disaster Management Approach if PCFSC

Stage of Disaster	Task
Before	Steer sectors and localities to build flood and storm mitigation works; and enhance community awareness
	Strengthen the PCFSC by improving operational regulations and identifying solutions and responsibilities when disasters occur.
During	Report and advice to the chairman of the People's Committee on the disaster situations and how to cope with specific disasters.
	Manage disaster mitigations work in accordance with designed capacity and minimize disaster impacts.
	Mobilise resources and steer departments, sectors and localities, in coping with disasters in order to minimise loss of people's lives and property

After	Report to the chairman of the People's Committee on the disaster consequences and response needs and advise her/him in providing assistance to communes and villages with weak local coping capacity
	Steer relevant departments, sectors and localities to implement recovery and review and draw lesson-learned for future implementation
	Manage disaster mitigation works and return their activities to normal status in order to cope with the next potential disaster

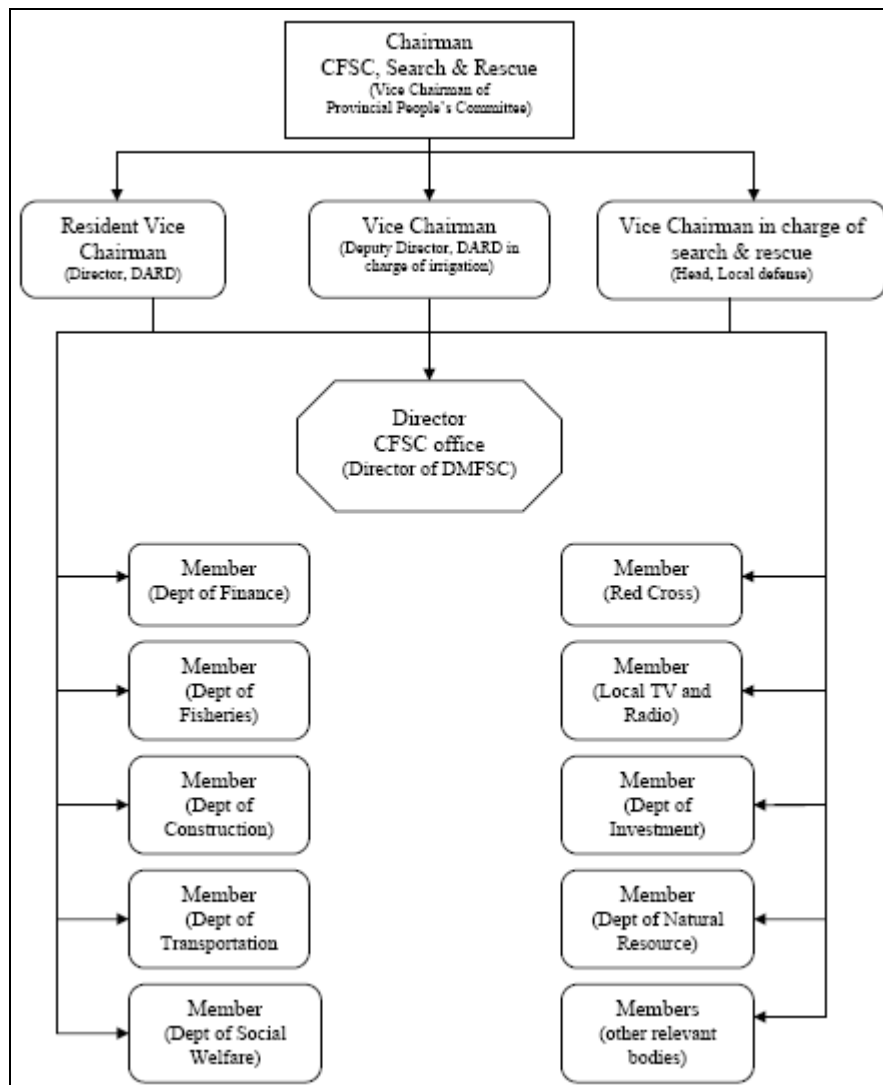


Figure 23 Structure of the Provincial Committee for flood and storm control and search and rescue

D1.1.3 Provincial Defence Department

The provincial defence department is mainly responsible for undertaking search and rescue within the province. Its responsibilities before any disaster include approval, monitoring and supervision of drills and annual search and rescue plans of other sectors. It stores material, equipment and goods for annual search and rescue preparedness and disaster response in provincial warehouses. The Defence Department coordinates with other relevant bodies on management, training, and equipment for search and rescue teams.

During a disaster event, the department coordinates with the PCFSC and other sectors, province and districts in conducting search and rescue during natural disasters.

In offices of other relevant departments and organizations, there is no full time staff in charge of flood and storm control or other kind of natural disasters. In these offices, once a year, the head of the organization forms a committee for flood and storm control with representatives from different sub-departments, lead by the director or deputy director of that organization. The flood and storm control committee is only active during an emergency response.

D1.1.4 Hue City, district and commune level

At the Hue city and district level the Vice Chairman of District People's Committee is the Chairman of the CFSC. The committee comprises members from the District Agriculture Department, Police and Defence forces. Search and rescue is under the district defence sub-department or local civil defence at commune level. The Red Cross volunteers also play an important role in search and rescue tasks at commune level.

The district CFSC consists of about 26 part-time staff that includes 16 members from the district CFSC, 7 from the district agriculture and rural department and 5 from the office of the People's Committee. The chief of the district office for agriculture and rural development is the resident deputy chairman of the CFSC that reports to the PCFSC office, other members come from fisheries, agriculture, irrigation, finance and admin. There are no full-time staff in charge of flood and storm control.

D1.1.5 Emergency Preparedness, Forecasting and Warning

Figure 24 presents a typical provincial forecast and warning system that uses desk phones for information dissemination. Between the provincial and district offices fax is used as means of communication supported by generators in case of power cut. Mobile phones are personal property not provided by the government and used only in emergency situations. It is common in Vietnam for most leaders from commune level and above to have their personal mobile phones used in regular management and during emergencies. Internet and computer network use is limited, and only available at the provincial CFSC. The province is proposing to install a computer network between the CFSC office and other relevant and important bodies down to district level. However, due to the lack of funding, this proposal is not expected to be implemented in the next few years.

For forecasting, the Province has 10 gauging stations, 4 of which are automatic, installed in the most critical areas to measure the hydro-metrological conditions and transfer information to the provincial CFSC. The staff members of the CFSC are mainly responsible to gather as much information as possible from other sources including the CCFSC correspondence, website, daily weather forecast on Vietnam TV and Radio, local TV and radio, etc.

The province has also built 15 "typhoon warning poles" along its coastline, using different colour bands to warn the people living near the ocean and the fishermen. The Province also built around 100 flood warning poles to measure flood water and to give warning messages to the people living near the rivers or in low land/flood prone areas.

At provincial level warning messages received from the CCFSC are passed down to the district which in turn passes to the commune. At commune level, loudspeakers are used to disseminate information and warning messages. Recently, more than 750 fishermen received FM radio receivers from the project funded by UNDP/USAID. This will help fishermen to get weather daily forecasts and timely warning messages when they are at sea.

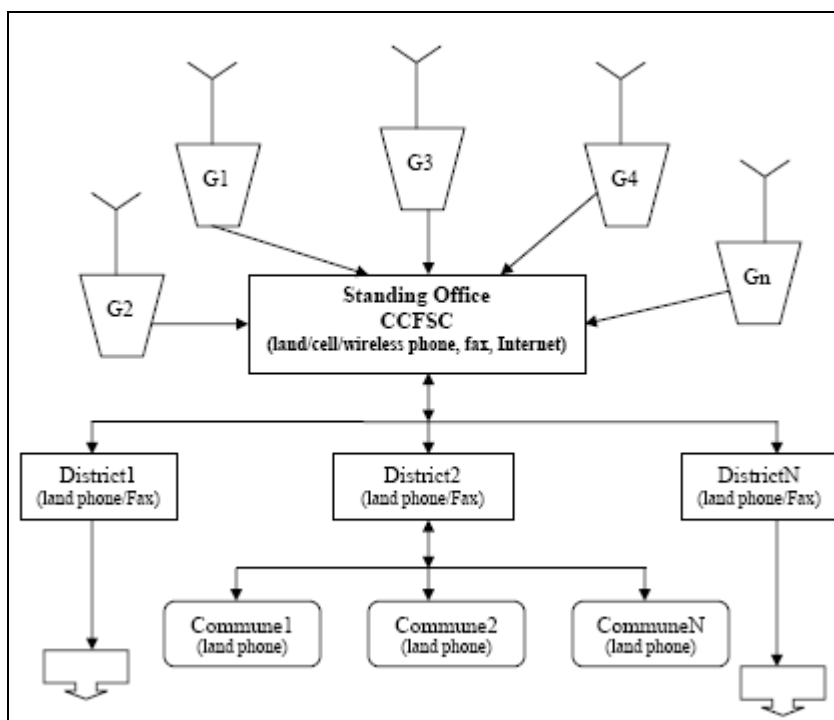


Figure 24 Provincial forecasting and warning system

D1.1.6 Prevention and Mitigation

The annual disaster preparedness and response plan sets clear role and responsibilities of general management such as:

- dyke management;
- search and rescue;
- irrigation and reservoir management;
- recovery;
- social welfare;
- relief,
- security and safety;
- health;
- reconstruction;
- transportation; and
- necessities including food and water distribution, power, communication, forecast and warning, communication, statistics and reporting.

However, there are no clear responsibilities for hazard mapping and risk identification. Raising awareness and communication about risks is very limited and often implemented through NGO, due to budget constraints.

D1.1.7 Response and Relief

Annually, mock drills in the event of emergency take place in most hazard prone districts and communes. The drill themes cover a wide range from evacuation and first aid, to search and rescue. The local Red Cross chapters are very active in conducting and participating in these drills.

Relief usually comes from the local community under the organisation of the local peoples committee, the army and the flood and storm control staff. Additional resources and other organisations get involved when the emergency escalates. Red Cross volunteers are also very active, especially at the community level. However, inadequate skills and experience during relief operations can impact effectiveness. The first activity during the response stage is the evacuation of people from risk areas, calling fishermen back to the shore and strengthening dykes, houses and public structures.

D1.1.8 Recovery and reconstruction

Recovery and reconstruction operations have mainly been supported financially by the Central government budget or from international aid. It has proven very difficult to mobilise financial contributions from the community for recovery and reconstruction. The community has mainly participated in planning and contribution of labour, time and material.

D1.1.9 Promoting disaster risk management as part of overall development

In recent years, efforts to integrate disaster risk management into the overall development process have been made. This was observed during the development of the 5 year social-economic development plan (2006-10), where the provincial authority's role in disaster management has been considered as part of the development plan. However, at the community level exercise promotion of disaster risk management in the planning process has been limited. It is only in some of the projects supported by international organizations where disaster risk management has been included as part of the community development plan. This integration needs more time, effort and investment. The adverse impacts of failing to integrate disaster management as outlined in the development plan are apparent. One of the most common effects has been the occurrence of localized flooding caused by the construction of new roads, making adjacent communities more vulnerable to flooding, and associated adverse health impacts.

D1.2 Gap Analysis

D1.2.1 Institutional and Legal

Local understanding of legal documents related to disaster management is limited, especially at the community level organisations, which are not directly involved in disaster management. Limited dissemination of legal documents to communities and organizations that are not involved in disaster management is one factor.

D1.2.2 Human resources

There is an absence of a central disaster management office to respond to all kinds of disasters. The staff members working on disaster management at the provincial, district and commune levels are employed part-time and work during emergencies. The high turnover of staff at the provincial and district level requires regular training, especially for new members. Most of the disaster management staff are not professionally trained and often receive training for only a few days on general disaster management. Their main source of knowledge is their past work experience on disaster management related jobs.

D1.2.3 Resources

Additional resources to respond to disasters are made available from the central government to the province, district and commune levels. However, these resources are not sufficient to meet the needs of Hue province as is limited funding available from the local budget for large-scale activities projects to improve preparedness, mitigation and early warning systems. The lack of decentralised budgeting has resulted in delay in undertaking large-scale works, as the central government must first approve.

Although it is legally permitted for the flood and storm control sector to collect household contributions, it has been very difficult to apply to households and the private sector (especially in the poor and mountainous areas).

At commune level, each year only a few hundred US dollars are allocated and available from the government budget for the CFSC to operate. These funds can only be used during the response stage and not for preparedness and capacity building. At the provincial level the funding is much larger but again needs to be balanced with alternative interests including flooding, typhoons or bird flu.

At the district and commune level, the CFSC can mobilise local contributions. However, lack of professional inventories, accountability and a system to hold reserve funds make it difficult to quantify. Private business operating in the community also has to reserve some materials for flood and storm control but it is very difficult to assess and count the stockpiling.

There is no government budget for training staff working in the sector at the provincial, district and commune levels. Every year the province organizes 1 to 2 meetings to review the previous years plan and to plan for the coming year on disaster preparedness and response.

The only training opportunity is offered by different projects of INGOs including Red Cross working in the province. The CFSC staff has never undertaken formal and technical training on disaster management. They have been mainly trained in universities on agriculture, irrigation or general management. The main institutions involved in disaster management and planning are listed below (Table 24).

Table 24 Disaster Management Organisations and Institutions

Phases	Main Organisations and Institutions
Disaster Planning	CFSC, Office of CFSC
Mapping	Office of CFSC: flood, typhoon; DARD: drought, forest fire
Forecasting	Meteorology: flood typhoon, DARD: drought, forest fire
Warning	CFSC, Office of CFSC, central and local Radio & Television
Preparedness	Office of CFSC: flood, typhoon; DARD: drought, forest fire
Response	CFSC, office of CFSC and relevant bodies
Relief	Aid Coordinating Committee including: Fatherland Front, Finance, Red Cross, Social Welfare
Reconstruction	People's Committee, and relevant bodies
Recovery	People's Committee and relevant bodies

D1.2.4 Operational capacity assessment

A1.2.4.1 Access to and knowledge in use of equipment for emergency response

PCFSC conducts training in the use of modern equipment for emergency response. Access and maintenance of equipment and stockpiling of sufficient emergency resources in safe areas for emergency preparedness are challenges in disaster risk management

The level of stockpiles depends on the government funding and scale and impact of a particular disaster. Usually the Central Committee for Flood and Storm Control (CCFSC)

subsidies and delivers materials to the province before the disaster season, which is delivered by the PCFSC to the district and communes. In an emergency, the PCFSC can decide to give some reserves to a specific district CFSC to cope with disasters. For example, in 2005, after the typhoon Damrey, the Thua Thien Hue received 60 shelters (different sizes), 1000 lifebuoys and 1500 life vests. However, annually the provincial CFSC must stock about 300 life vests, 300 lifebuoys, 40 temporary shelters, a few thousand steel cages and 70,000 sand bags for dyke protection work.

The CFSC at the province and district level identifies safe areas for evacuation such as people's committee office, school, public facilities, or selected people's houses deemed suitable (e.g. must be strong, preferably 2 floors and located on high land), safe hiding place for boats etc. In the past years, evacuation has been successful in saving lives of many people.

A1.2.4.2 Mobilizing human and material resources

The CFSC annual Flood and Storm Control Plan requires effective and timely mobilisation of local resources and contributions by the people of labour and local materials (e.g. bamboo, sand bags, sand/soil, rope, small boats, transportation means etc). During large scale disasters, CFSC mobilizes the army, police, CFSC staff members, Red Cross volunteers, NGOs, and other relevant organisations.

In the past few years, CFSC has built a strong relationship with some INGOs working in disaster management to build the capacity of communities and help raise awareness on preparedness and undertake small scale structural measures like house strengthening, school and road upgrade.

A1.2.4.3 Past experiences and achievement

Early warning, structural measures and awareness undertaken by CFSC and NGOs has resulted in significant improvements in the lives of communities. In 2005, CFSC successfully evacuated people and called fishermen back home safely before the Damrey and Kai-tak typhoons. In the past CFSC built 9 reservoirs (2 big ones are Truoi and Hoa My) for flood control, a dyke system in the lower basin of the Huong River, identified relocation areas for people living on boats in the Huong River and strengthened houses in areas prone to typhoons. The NGOs in collaboration with PCFSC have also successfully organized training and campaigns to raise awareness on disaster risks at community level.

A1.2.4.4 Support for community action

Annually each commune receives only few hundred US dollars from the State budget to respond to disasters. Flood and Storm fund (collected from individuals and the private sector) is used only during response to assist people affected by disasters. Within the technical support, mock drills are undertaken in high risk communes organized by CFSC and/or Red Cross. Training activities are generally limited and are mostly undertaken by NGOs or international organisations.

A1.2.4.5 Participatory planning and public awareness

In recent years, Red Cross and NGOs have introduced participatory planning; however this process has not been institutionalized. Local TV and radio have programs providing basic knowledge on different hazards to community people, such as: typhoon, flood, forest fire. However, this has limited application to the poorest households. There have been some activities undertaken by the Red Cross that include a project to educate primary school children on disaster management. NGOs also introduced some projects to raise awareness on disaster management. At the commune level, the local authority use commune loudspeakers to disseminate information about disaster management and forecast early warnings to people.

A1.2.4.6 Support to traditional community coping mechanisms

According to the National Strategy for Disaster Risk Management of Vietnam, Hue and other central provinces must apply coping mechanism to avoid disasters (unlike the Mekong

delta, where people are encouraged to live with flood). Therefore, in the past years, the CFSC and community have relocated people from risk areas for example along Huong River, Hue lagoon and strengthened houses for people living in coastline that prone to typhoon.