



AIT
Asian Institute of Technology



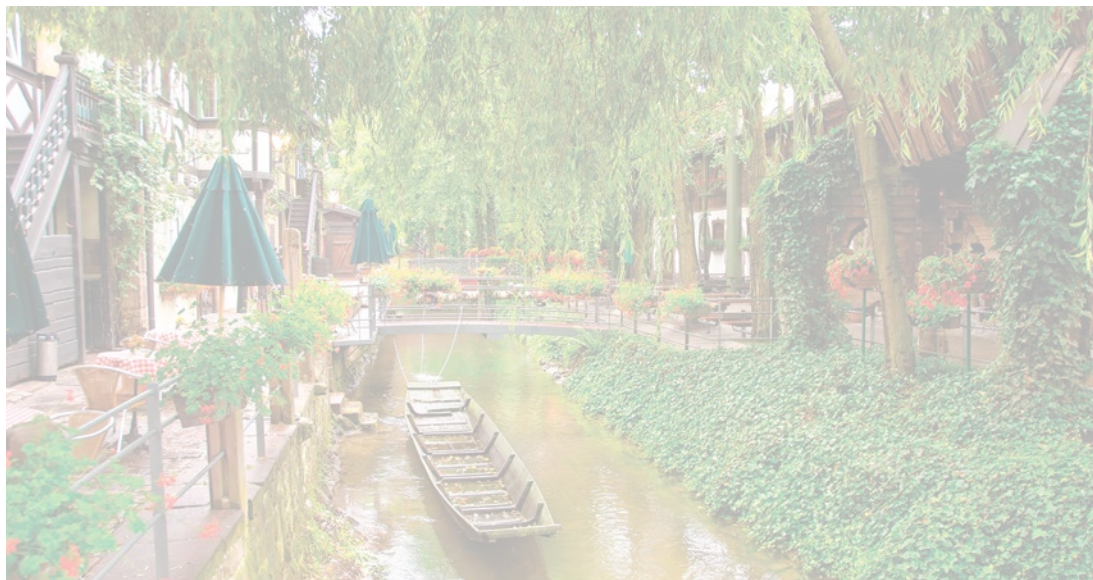
Sustainable urban tourism through low-carbon initiatives: Experiences from Hue and Chiang Mai

By S. Kumar, Kyoko Kusakabe and Pujan Shrestha, Asian Institute of Technology;
Nguyen Khanh Linh, Hue Center for International Cooperation; and
Trinnawat Suwanprik, Municipality of Chiang Mai

February 2016

Sustainable urban tourism through low-carbon initiatives: Experiences from Hue and Chiang Mai

By S. Kumar, Kyoko Kusakabe and Pujan Shrestha, Asian Institute of Technology;
Nguyen Khanh Linh, Hue Center for International Cooperation; and
Trinnawat Suwanprik, Municipality of Chiang Mai



© Zanna Kareline/Shutterstock

Urban garden and canal, Vietnam

Contents

1. Introduction	2
1.1 Background	2
1.2 Purpose of the report	2
2. Overview of the SUT project	2
2.1 Setting the context	2
2.2 The SUT project in a nutshell	3
3. City approach to sustainable urban tourism: Chiang Mai	5
3.1 City profile	5
3.2 City impacts and initiatives	5
3.3 Local strategy for low-carbon development and employment generation	6
4. City approach to sustainable urban tourism: Hue	7
4.1 City profile	7
4.2 City impacts and initiatives	7
4.3 Local strategy for low-carbon development and employment generation	8
5. Enabling factors for project implementation	10
6. Challenges to project implementation	11
7. Lessons learned	12
Endnotes	13

1. Introduction

1.1 Background

The Climate and Development Knowledge Network (CDKN) has been involved in packaging case studies of developing country experience deriving from the design, planning, and implementation of activities that are geared at fostering more climate compatible development. CDKN aims to meet the interest of decision-makers on their information needs in climate compatible development planning and practice elsewhere through the production of case studies in the form of Inside Stories and Background Papers. Inside Stories provide succinct information, particularly for development policy-makers and practitioners, whereas the longer more detailed Background Papers provide an analysis of the various project aspects of interest to academics, researchers and donors.

These case studies not only demonstrate good policies and practices, but also share the learning process that often unfolds as an ambitious project encounters people, institutions, interests, governance frameworks, etc. in a real world context. The authors of this Background Paper were deeply involved in a particular activity, have observed developments first-hand or otherwise interacted with people who have directly contributed to project implementation.

This report constitutes the background paper prepared for the CDKN-ICLEI learning programme. It provides a deeper analysis of the different factors which determined the course and the final outcome of the project 'Sustainable urban tourism through low-carbon initiatives: Experiences from Hue and Chiang Mai', conducted during 2012–2013. The Asian Institute of Technology serves as learning coordinator and is the main representative of the SUT project in the CDKN-ICLEI learning programme.

1.2 Purpose of the report

The report's main objective is to provide key lessons from the SUT project through the analysis of different enabling conditions and obstacles that determined the course and the final outcome of the initiative.

2. Overview of the SUT project

2.1 Setting the context

Cities account for up to 70% of global greenhouse gas emissions and they can play a significant role in developing locally-appropriate greenhouse gas mitigation actions and strategies.¹ Chiang Mai in Thailand and Hue in Vietnam are rapidly growing small- to medium-scale cities in the Greater Mekong Subregion, and both are becoming increasingly popular as tourist destinations.

Tourism provides employment for a large number of people in these cities and their countries. For example, the direct contribution of travel and tourism to the gross domestic product (GDP) in 2012 was 7.3% in Thailand and 4.5%, in Vietnam. The industry directly and indirectly generated over 2 million jobs in Thailand and over 3.8 million jobs in Vietnam, representing 5.2% and 8.1% of total national employment, respectively.^{2,3}

However, while tourism is an important urban economic sector, its carbon intensity is also well recognised. Tourism contributes to about 5% of total global greenhouse gas emissions,⁴ and the most common greenhouse gas, carbon dioxide (CO₂), is emitted through goods and services related to tourism. Major tourism-related CO₂ contributors include energy used for transport (from origin to destination as well as for local travel at the destination), development and operation of tourism infrastructure (e.g. hotels, road construction, heating and cooling) and various leisure activities.⁵ Thus, tourism contributes to some extent to global warming and climate change.⁶

Promoting tourism while upholding the local cultural heritage, creating more green jobs for the poor and, most importantly, considering potential adverse impacts to the environment, can make cities more attractive as tourist destinations. However, to achieve this, cities first need to know the proportion of their greenhouse gas emissions that are attributed to tourism and related products and services, and then identify and implement specific actions to mitigate these emissions.

What has become apparent now is that cities, as engines of growth, should start to move toward low-carbon, pro-poor development pathways that will create a conducive environment for socially-inclusive and climate compatible development opportunities. Against this backdrop, the SUT project examined how the tourism sector can serve as a take-off point to reduce greenhouse gas emissions while generating opportunities for pro-poor, green and decent jobs for men and women.

2.2 The SUT project in a nutshell

The SUT project was executed by Chiang Mai Municipality (CMM) and Hue City Centre for International Cooperation, with overall management and technical support from the Asian Institute of Technology. Financial support came from the Sustainable Mekong Research Network and CDKN.

The main activities included estimates of greenhouse gas emissions by tourism service providers (TSPs⁷) in the two cities as well as a review of potential green job opportunities. At the end of the project, the project team released a policy brief with recommendations for the most viable mitigation options to address the twin goals of greenhouse gas emissions reductions and green job generation. Project information and results were disseminated through brochures,⁸ websites,⁹ a poster, newspapers,^{10,11} and academic publications in the form of a book chapter,¹² a journal article¹³ and policy briefs.¹⁴

Greenhouse gas emissions by the tourism sector were estimated using primary data on, for example, electricity and fossil fuel consumption in the entity; energy used for production of food, materials and other products consumed by visitors; and travel by visitors and employees, etc. Data were collected from 84 TSPs in Chiang Mai and 50 TSPs in Hue. Secondary data (e.g. number of TSPs, employees working in tourism sector, emission factors, etc.) were obtained from city authorities and publications.

These primary and secondary data were placed in the Bilan Carbone^{®15} spreadsheet, which calculated the greenhouse gas emissions from all direct (i.e. within the city boundaries) and indirect (outside the city boundaries) activities associated with the tourism sector for the year 2011. Figure 1 shows the methodology used for the greenhouse gas estimation.

Terms used in the Bilan Carbone[®] system are defined as follows:

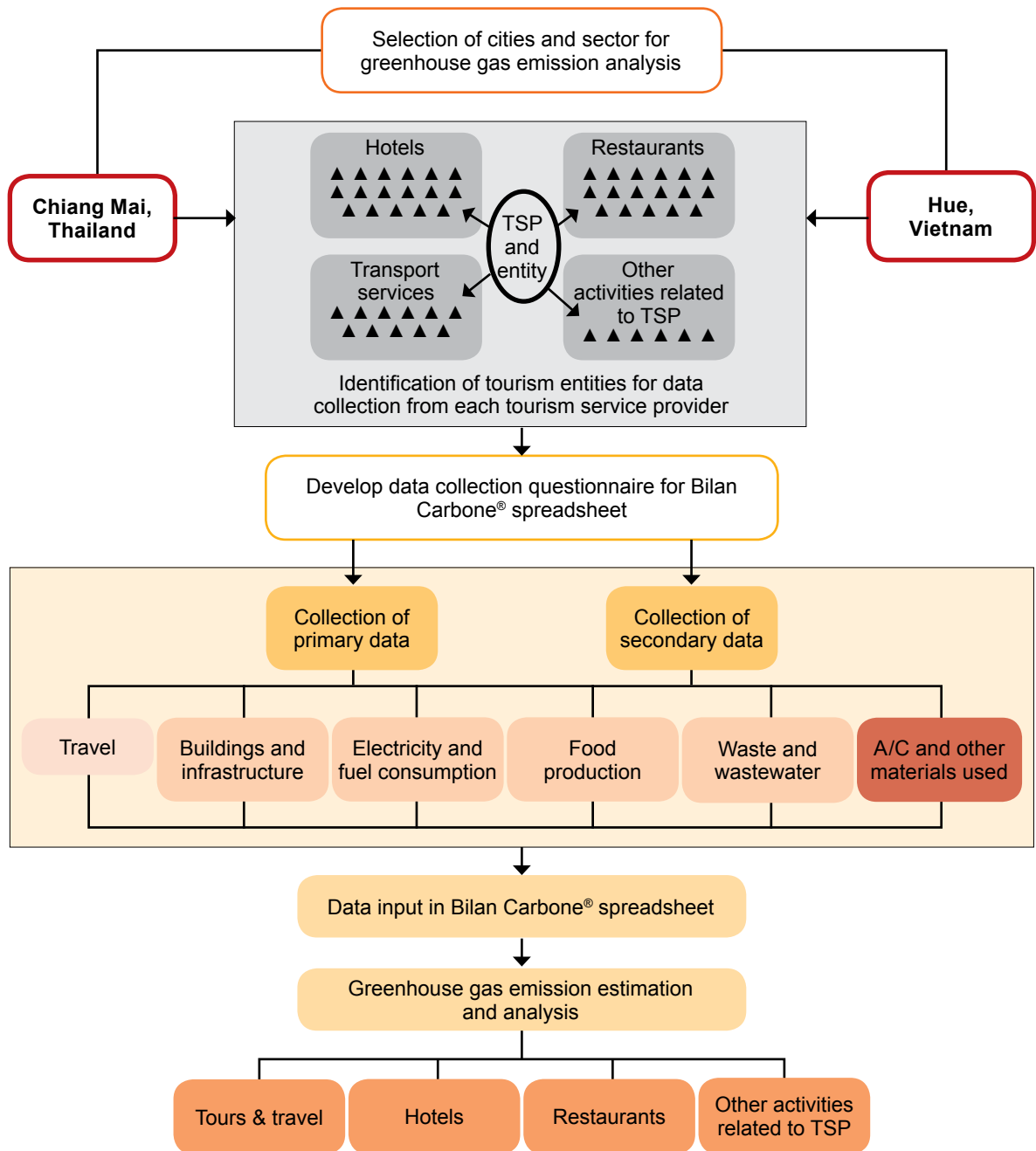
- 'Travel' covers emissions caused by i) travel by the visitors and employees (of the tourism industry) using various modes of transport, ii) goods transport to support the visitors, and iii) transport caused by the services provided by the city/municipality.
- 'Buildings and infrastructure' cover all emissions from electricity and fossil fuel used to produce the construction materials and infrastructure development of hotels, restaurants, travel agencies and other buildings constructed for tourism services.
- Electricity and fuel (LPG, petrol and diesel) are used by TSPs to run their activities. Electricity is used in almost all TSPs for lighting and air conditioning. The fuels are used mainly for cooking, power generation in case of electricity outage, and lawn and tree maintenance at hotels and restaurants.
- Emissions from the food production process include agriculture that consumes fossil fuels directly (tractor fuel) or indirectly (manufacturing of fertilisers, phytosanitary products, etc.)
- Both cities have a large number of hotels and restaurants. The food waste they produce generates a large amount of greenhouse gas emissions when disposed in landfills. Hotels and restaurants also use large amounts of water and discharge wastewater, which contributes to greenhouse gas emissions.
- The TSPs in the two cities use air conditioners, especially the hotels and restaurants. The leakage of refrigerants from air conditioning equipment in both cities and the use of nitrogen-containing fertilisers in garden houses of Hue were also considered as potential/important greenhouse gas emission sources.

The estimated greenhouse gas emissions in the tourism sector of Chiang Mai and Hue were discussed by stakeholders.¹⁶ A number of consultative meetings were held between research partners and local stakeholders to explore how to achieve greenhouse gas emissions reduction vis-à-vis gender responsive, pro-poor and low-carbon tourism. The feasibility and confirmation of potential employment creation were assessed through local surveys.

To ensure that pro-poor and gender concerns were taken as important criteria for selection, three assessment indicators were considered, namely i) greenhouse gas emission reduction areas, ii) potential job creation category, and iii) stakeholders' interest and feasibility of implementation of the strategies/programmes.

In the end, the project partners in each city selected and prioritised one mitigation option. Advocating non-motorised transport (NMT) was identified by Chiang Mai Municipality, while promoting garden houses was chosen in Hue. Both had the potential to reduce emissions as well as generate jobs, increase income and provide a cleaner environment for visitors and locals. Although these measures do have the ability to reach maximum greenhouse gas emissions reduction, the stakeholders considered both technical and social aspects of the tourism sector in choosing these options.

Figure 1. Methodology for estimation of greenhouse gas emissions



The stakeholders' suggestions were translated into a set of policy actions and strategies to implement the recommended measures. Subsequently, policy briefs were developed for each city and these were endorsed for further commitment by the cities' top authorities (the Mayor of Chiang Mai and the Vice-chairman of Hue Province People's Committee). These policy recommendations aimed to give added value to the cities' existing plans and policies in the tourism sector by integrating low-emission development while simultaneously providing opportunities for green and decent jobs for both women and men.

3. City approach to sustainable urban tourism: Chiang Mai

3.1 City profile

Chiang Mai is one of the fastest growing secondary cities in Northern Thailand. It is located around 700 km north of Bangkok and 250 km south of the Myanmar (Burmese) border. It sits well within the tropics – located 18 degrees north – and is surrounded by mountain ranges, forming the tail end of the Himalayan range.

The CMM administration is responsible for areas that cover approximately 40.216 km² and consists of 4 municipal districts, 14 sub-districts, 90 municipal communities, and approximately 70,000 households, with a total population of 146,800 inhabitants.

Chiang Mai is a well-known historical city with a rich cultural heritage and pristine natural resources including mountains, springs and waterfalls. Its economy has seen continuous growth in recent years, largely driven by the commercial sector and tourism industry. The city is a Mekong regional hub for transportation, aviation, education and medical services. Chiang Mai's Gross Provincial Product (GPP) is around 138,112 million Baht, and the GPP per capita was 86,212 Baht (US\$2,600) in 2010.¹⁷

Chiang Mai Municipality facts

Area: 40.216 km²

Population: 146,800 (in 2011)

Density: 3,687 persons/km²

GDP per capita: US\$2,712 (2011)

Tourists: 5,545,009 (in 2011)

Average stay: 3.6 days

Tourist attractions: Ping River, temples, night bazaar, Sunday walking street, spa and massage, workshop and golf courses.

The city is an important travel destination and hosts millions of tourists every year. Tourism arrivals grew by 18% in 2012 compared to 2011 and around five million tourists visited Chiang Mai in 2012. In 2012, tourism generated a total revenue of around 53,863 million Thai Baht (US\$ 1.7 billion) for the city.¹⁸

3.2 City impacts and initiatives

Chiang Mai is increasingly facing issues common to growing cities, such as unplanned and sprawling development, air and water pollution, traffic congestion, poor waste management and environmental degradation. The horizontal sprawling of the city's land use compromises the city centre's compact pattern. Due to unplanned urban development, absence of traffic management policies and practices, and lack of integrated transport and land use planning, Chiang Mai is facing several urban transport challenges, including growing road traffic congestion and air pollution, inadequate public transport system, and insufficient pedestrian ways, inconveniencing both locals and visitors.

The demand for transport to serve tourists and residents in the city of Chiang Mai has been surging, resulting in an increase in the number of road vehicles. Between 1992 and 2005, the number of registered vehicles tripled from 405,868 to 1,241,085.¹⁹ The absence of mass public transportation in Chiang Mai also drives inhabitants to use private vehicles. As a result, liveability, environmental sustainability and personal mobility have declined while urban transport is becoming a major source of greenhouse gas emissions. It is expected that a well-planned and implemented tourism sector in Chang Mai will eventually lead to SUT characterised by modal shifts to cleaner travel – thus enhancing the city's sustainability and reducing its overall emissions.

Table 1 summarises the emissions produced by the tourism sector in Chiang Mai and their respective shares based on the SUT project. True enough, the largest source of emissions came from the transport sector. In total, Chiang Mai emitted around 4.4 million tons of CO₂ equivalent (CO₂eq) from products and services associated with the tourism sector in 2011.²⁰

Table 1. Summary of greenhouse gas emissions produced by the tourism sector in Chiang Mai

Sources	Emissions (tons of CO ₂ eq)	Percentage (%)
Travel (travel within the city and to the city from outside)	4,233,304	95.8
Energy (electricity and fuel used)	77,695	1.8
Property (infrastructure and assets)	53,905	1.2
Direct waste (food, waste and waste water)	29,851	0.7
Inputs (material, products and services)	22,756	0.5
TOTAL	4,417,511	

Source: Kumar et al. (2014)²¹

3.3 Local strategy for low-carbon development and employment generation

To reduce city-level emissions, greater emphasis needs to be placed on reducing the emissions by the transportation sector. Noting that air travel emissions are outside the city's purview, the stakeholder consultation identified the development of a non-motorised transport (NMT) system to reduce emissions in Chiang Mai.

NMT is any form of transportation that uses human energy or animal power for personal or goods mobility by methods other than the combustion motor engine.²² It includes walking, bicycling, small-wheeled transport, carts, etc., and provides flexible options for mobility. For tourists, NMT can enhance recreational opportunities by reducing road congestion.

Facilitating NMT, particularly walking and cycling, will directly reduce the CO₂ emissions that would have otherwise resulted from other modes of transportation. Cycling and walking are also access modes for public transport, and their promotion could lead to increased public transport use. On the socioeconomic side, restricted motorised transport will provide opportunities for tourists and other visitors to purchase handicrafts and other goods from local vendors along the sidewalk, thereby contributing to the local economy.

Based on the SUT project, if the municipality promotes NMT in the Three Kings Monument, an important city landmark, it can replace between 535,820 and 1,339,550 local vehicle (diesel) kilometres travelled per year, cutting 230–570 tons of CO₂eq per year. This translates to a reduction of 0.6 to 1.6% of greenhouse gas emissions from land-based transport within the city.²³

Cognisant of this, CMM noted that SUT development through low-carbon initiatives is crucial to enhance the city's liveability and maintain its attractiveness as a leading tourist destination (Box 1). CMM has focused its development plans on realising this low-carbon vision. Apart from the SUT project, CMM has been implementing another initiative on integrated land use and sustainable urban transport planning. This project, much like SUT, aims to increase the amount of bicycle routes and cyclists in the inner city while creating employment opportunities for specific groups such as bicycle rental shops and repair shops, bicycle sellers, street vendors, pedicab providers and tour guides.

Box 1: Realising the low-carbon vision of Chiang Mai

CMM has been carrying out a project with Global Environment Facility (GEF) funding on integrated land use and sustainable urban transport planning, which was completed in March 2014. One of its objectives is to further promote NMT. At the end of the project, substantial efforts to promote NMT in the Three King Monument will be in place.

These include widening pedestrian walkways, creating bicycle lanes, installing lights for public safety, and incorporating green spaces. Three types of NMT are considered: bicycles only, bicycles and pedestrians, and bicycles and car parking. Short-, medium- and long-term plans are also being prepared in coordination with Chiang Mai University.

Through this initiative, Chiang Mai increased its coverage of roads with bicycle lanes from 4% to about 10%. This was achieved through the creation of a network of bicycle lanes, construction of new bicycle lanes, reducing the speed limit of vehicles within the canal area to a maximum of 30 km/hour, introducing car-free days, promoting Segways (two-wheeled battery-powered vehicles), increasing public awareness through exhibits and encouraging people to cycle, etc. Following implementation in Three King Monument Area, there are plans to expand NMT in four more areas in the inner city.

To date, CMM has garnered support from a number of stakeholders in its NMT advocacy, particularly for cycling. The Chiang Mai Sunday Cycling Club organised the 2014 Bicycle Festival in February 2014 to further generate awareness about the benefits of cycling.

Further, interviews with shop owners reveal that the number of bicycle rent shops and bicycle sales shops have increased in the city, corresponding to an increase in the number of persons renting (primarily tourists) and buying (mostly locals) new bicycles. Some hotels and restaurants also rent bicycles to their guests. Tourists use bicycles for moving around the city, while locals appear to take up cycling mainly for its health benefits and convenience. Bicycle rental varies from Baht 60–200 per day (US\$1.70–6.00), while most of the bicycles sold are around Baht 10,000 (US\$300).

From the perspective of bicycle shop owners, they hope that CMM can provide bicycle lanes and other necessary infrastructure to promote cycling. Safety is also a concern regarding NMT because to date, there is no insurance cover for the use of rented bicycles. Tourists usually sign a waiver and place a deposit.

Source: Asian Institute of Technology (2013a)²⁴

4. City approach to sustainable urban tourism: Hue

4.1 City profile

Hue is a small- to medium-sized city located in central Vietnam. Hue is best known as the capital of the Nguyen Dynasty, which lasted from the beginning of the 19th century to the middle of the 20th century. The city is formed in a narrow strip of delta, just a few miles inland from the East Sea (South China Sea).

Hue is administrated by the local authority, Hue City Centre for International Cooperation. The city has a total area of 71 km², and is divided into two major areas – north and south of the Huong River – with a total population of around 340,000 people²⁵. The sixth largest city in Vietnam, Hue is now implementing an urban development plan designed to turn it into a metropolis, raising expectations of population growth in the future. The city has maintained its high economic growth (9.7% in 2012) with an increased share of service sectors.²⁶

Hue City facts

Area: 71 km²

Population: 339,000 (in 2011)

Density: 4,762 persons/km²

Per capita: USD 1,350

Tourist visit: 1,590,900 (in 2011)

Average stay: 2 days

Tourist attractions: Perfume River, temples, monuments and citadels.

Famous for the relics of the ancient capital, its pagoda system, landscapes, cuisine and gardens, Hue is a cultural and tourism centre in the country. In 1993, UNESCO recognised the Complex of Hue Monuments as a World Cultural Heritage site. Hue is also regarded as the Festival City of Vietnam (originating with its English-French Festival of 1992), and the city has since successfully held seven festivals of national and international scale, attracting millions of tourists. Hue's strategic location in Vietnam's central economic region and in the axis of the East–West economic corridor of Laos, Myanmar, Thailand and Vietnam has contributed to the city's tourism and economy. In 2012, the tourism sector alone contributed to about 48% of the GDP and the service revenue amounted to almost 4,950 billion Vietnamese Dong (around US\$250 million). That same year, the city received around 2.5 million tourists – both international and local (see Table 2).²⁷

Table 2. Tourism statistics for Hue (2010–2013)

Type	2010	2011	2012	2013
Total visitors	1,451,630	1,590,900	2,320,316	2,328,973
(Vietnamese tourists)	844,030	888,900	1,561,610	1,455,066
(Foreigners)	607,600	702,000	802,904	873,907
Revenue in Vietnamese Dong (billions)	830	1,700	1,215	1,842
USD ²⁸	44.59	82.88	58.33	88.43
Average length of stay (days)	2.02	2.02	2.01	2.03

Sources: Cong Thuong (2012),²⁹ Hue City (2013),³⁰ and Thua Thien Hue (2013)³¹

4.2 City impacts and initiatives

With a coastline of more than 127 km, the province of Hue is vulnerable to impacts of climate change. Every two or three years, Hue City and its adjacent areas suffer from floods, which are increasing in frequency and intensity. (Hue is the name of both the province and the province's capital city; in this context, references to 'Hue' are for the city unless otherwise specified.) Sea level rise affects the coastal beaches of the province, affecting the tourism industry. Furthermore, sea level rise can directly damage the historical heritage, infrastructure and services of ancient Hue.³²

Addressing the impacts of climate change requires good urban development planning. Although building an embankment system around the city and the historical sites has been proposed, it may not preserve the landscape of Hue and its coastal tourist areas. Therefore, measures to mitigate the impact of climate change require, among others, good knowledge of climate change issues and consideration of low-emission options.³³

Table 3 summarises the greenhouse gas emissions produced by Hue's sources within tourism sector and their respective percentage of total emissions. The largest sources of greenhouse gas emissions are travel, freight and infrastructure, and assets. In total, Hue emitted around 0.5 million tons of CO₂eq from products and services associated with the tourism sector in 2011.³⁴

Table 3. Summary of greenhouse gas emissions by Hue tourism sector

Sources	Emissions (tons of CO ₂ eq)	Percentage (%)
Travel (travel within the city and to the city from outside)	377,618.6	76.6
Freight	58,570.8	11.9
Property (infrastructure and assets)	21,807.9	4.4
Energy (electricity and fuel used)	17,805.4	3.6
Inputs (material, products and services)	11,213.2	2.3
Direct waste (food, waste and waste water)	2,973.8	0.6
Non- energy (refrigeration and fertiliser used)	2,210.6	0.4
TOTAL	492,200.4	

Source: Kumar et al. (2014)³⁵

4.3 Local strategy for low-carbon development and employment generation

Withstanding the adverse impacts of tourism to the environment, Vietnam has realised the importance of embracing sustainable tourism, which is an important component of the United Nations and Strategic Orientation of Sustainable Development in Vietnam (Vietnam Agenda 21). The first Vietnamese national conference on sustainable tourism development was held in Hue in 1997, where the Vietnamese Government adopted the principles of sustainable tourism development. The concept recognised the importance of conserving tourism resources, the natural environment, biodiversity and cultural values, as well as the need to increase involvement of – and benefits to – local communities.³⁶

In line with the principles of sustainable development, Hue has implemented a new tourism model under its 2010–2020 'Hue – A Homeland of Happiness' plan. Among other priorities, the plan emphasises the cultural heritage of Hue, as reflected in its old infrastructure and buildings, and stresses the need to combine the core values of Hue's culture and history to benefit the local economy.

With this background, the stakeholders identified the promotion of garden houses as having the most potential for employment creation for the poor; there was also great interest from the group to implement the chosen strategy. The inclusion of a criterion of creating employment for the poor was introduced to add the social impact perspective to the numerical estimation of greenhouse gas emissions.³⁷

The garden house is a distinct type of urban architecture of Hue City built hundreds of years ago as a residence for nobility.³⁸ One of the cultural heritages of Hue, there are around 2,000 of them in the city. The garden forms a 'miniature ecosystem' within the house, in which the building, garden, people, plants and water co-exist. Garden houses are all privately owned and few are open to tourists. For tourists visiting Hue, garden houses offer opportunities to commune with the serene nature while experiencing local culture. They serve as a place for relaxation within the city limits.

Garden houses can help reduce greenhouse gas emissions in various ways. First, they act as carbon sinks. Second, some garden houses can manage household food waste either through composting or using waste as animal feed, thereby lessening the amount of waste going to the landfill. At the city level, since some garden houses produce fruits and vegetables, they help reduce transportation emissions from importing these products.

Garden houses can also contribute to local income. Owners and garden workers can use these products for both household consumption and commercial purposes by selling their produce. Some garden houses hire people to tend gardens, while others – such as those in Kim Long commune (where garden houses are concentrated) – operate restaurants and sell souvenirs.

This shows the potential of using garden houses to create more economic activities and jobs in Hue. At present, most people who are employed in garden houses are middle-aged women. All workers in garden houses receive more than minimum wage, and middle-aged women receive higher wages than other groups of people.³⁹ This represents an important contribution to job creation for the poor, since middle-aged women normally have more difficulty in finding better-paid jobs.

It is important to note however, that initiatives to further promote garden houses tend to be limited and are primarily driven by the owners. As such, the maximum potential of garden houses as instruments of climate compatible development have yet to be realised. While Hue City has decided to promote garden houses to attain low-carbon development under the principles of SUT (Box 2), there are institutional and financial barriers that do not provide the necessary enabling conditions to do this.

Thua Thien Hue Provincial Department of Culture, Sports and Tourism estimated that if Hue City authority promotes garden houses, it could attract 20–40% more visitors. At the same time, if the city authority and garden house association encouraged these visitors to use *cyclos* (bicycle taxis) or bicycles to travel to garden houses, it could replace 127,950 to 255,900 local vehicle (petrol) kilometres travelled per year – a reduction of about 100 to 200 tons of CO₂eq per year. This means, there is a reduction of about 4–9% of greenhouse gas emissions from land-based transport within the city, even with increased numbers of tourists.⁴¹

While garden house promotion is biased toward the economic perspective – i.e. to boost tourism – it should be noted that the type of tourism that the city promotes is eco-tourism. Hue promotes bicycles and small boats as important vehicles for tourism; garden houses fit very well into the framework of the eco-city.

Since most of the garden houses are located outside the central area of Hue where public transportation is not frequent, garden houses can provide additional income to non-motorised vehicle operators (e.g. cyclo drivers). Cyclo drivers are organised into five unions and are given English lessons as well as tour guide training. Tourism agencies can also organise trips to garden houses using non-motorised vehicles such as cyclos, bicycles and small boats.

Recognising that the success of garden house promotion will result in an increase in the number of tourists, this can be a dilemma for future development planning. An increase in the number of tourists is directly correlated to an increase in total greenhouse gas emissions (although per capita emission will decrease). There is a need for further effort and exploration of other avenues to decrease greenhouse gas emissions. Strong political will and active engagement of relevant stakeholders are key.

Box 2. Preserving the garden houses of Hue

Garden houses have been promoted as a tourism attraction in Hue since 2002, during the second international festival. In the same year, a management committee for garden houses was set up at the commune, city and provincial levels to take charge of matters concerning the structures.

Owners link with travel agencies to include their respective garden houses as part of organised tours. There are no municipal incentives for owners who want to promote garden house tourism. While there is an existing policy to promote and preserve garden houses, there is a need to review how this is being implemented.

Another challenge is the high cost of maintaining and renovating garden houses, which use traditional materials. While the city helps facilitate loan application, the process is lengthy and discourages many owners from applying for funding.

To date, there have been a number of international initiatives to preserve garden houses as a cultural heritage in Hue City. In 1997, the French restored one garden house, which has become the model for restoration. In 2002, the Ford Foundation funded the renovation of six others. From 2002 to 2005, a French senator donated funds to restore 15 garden houses. In such cases, the city government issues an expression of interest for owners who want to renovate garden houses. Part of the agreement is that the owners pay a small percentage of renovation costs. There is also an existing partnership with Waseda University and the Japan International Cooperation Agency to study their unique architecture.

The high cost of maintaining garden houses coupled with urbanisation has resulted to what is termed by the locals as “garden house bleeding” or the gradual loss of heritage houses in Hue City. Originally, garden houses have been passed from one generation to another. But over time, the younger generations sell their garden houses (which are of high value primarily because of their large size) and move to areas nearer the city centre.

These are some of the issues being faced by garden houses that need to be addressed first before they fully achieve their potential as instruments of climate compatible development. There is a need for stronger cooperation between the local people and the government. Strong political will and active engagement of relevant stakeholders are also key.

Source: Asian Institute of Technology (2013b)⁴⁰

5. Enabling factors for project implementation

Some of the critical factors, in terms of overall SUT project concept, process and other elements, that enabled successful implementation include:

1. **Novelty and relevance of the project.** The SUT project approached urban tourism by exploring opportunities for low-carbon development through reduced greenhouse gas emissions while recognising the importance of socially-inclusive urban development (i.e. by finding opportunities for creating green and decent jobs for men and women, particularly for the poor). Programmes and strategies for low-carbon development have been often technology-oriented, without consideration of the impact on women and men in the society. There is little research that actually explores opportunities for lowering greenhouse gas emissions while at the same time providing decent and green jobs. The novelty of the project in addressing the lesser-studied area of employment creation with low-carbon development in the tourism sector generated greater interest for both researchers and implementing authorities.

Similarly, the project was relevant in the context of climate change mitigation. Climate change is influenced not only by climate-specific policies but also by the mix of development choices and the resulting development trajectories.⁴² Initiatives such as low-carbon development remain important in view of climate change mitigation.⁴³ Small- to medium-sized cities like Chiang Mai and Hue are appropriate for exploring low-carbon options in their development pathways. The project catered to these needs by exploring low-carbon initiatives in the tourism sector, one of the important economic drivers of both cities.

2. **Participatory research and contextual action.** The SUT project was based on action research, involving assessment, planning and execution with the twin outcomes of research and action. It involved the use of the Bilan Carbone[®] tool to estimate greenhouse gas emissions by the tourism sector in the two cities. The results of these assessments were then brought to stakeholders for discussion. Based on the discussions, feasibility and confirmation of employment creation potentials were assessed. Finally, in consultation with city authorities and related stakeholders, suitable strategies for sustainable tourism options were identified and designed. The cyclic process of learning and doing helped to address issues and find solutions to problems.

The participatory nature of the research identified researchers and implementers (city authorities), together with other stakeholders, as important partners from project's formulation phase through to its completion phase. This approach ensured a multi-stakeholder partnership between researchers, local authorities, non-governmental organisations (NGOs) and locals to work together in the design of an efficient solution to practice sustainable urban tourism in both the cities.

Stakeholders were crucial to every step of the research, by providing emissions data, proposing and prioritising greenhouse gas mitigation options, and suggesting suitable policy options. The low-carbon initiatives were proposed after considering inputs from the different stakeholders such as TSPs, local people, students and academia.

Upon completion of the research, the cities have taken up the results as a policy statement and committed to further action. The participatory research and contextual actions were essential to obtain the desired results. Further, usually greenhouse gas emission mitigation may help 'the rich' such as companies and industries, but this research specifically aimed to create opportunities for 'the poor'.

3. **A history of collaboration between partners.** All three research partners (Hue City Centre for International Cooperation in Vietnam, CMM in Thailand, and the Asian Institute of Technology) had worked together earlier in a project on Low-carbon Cities supported by French Agency for Energy and Environment Management (ADEME). The history of collaboration between partners created an atmosphere of trust and allowed for a clearer understanding of each other's roles and expectations.
4. **Other factors.** A number of related activities in both cities stimulated people's interest toward the SUT approach, with a focus on low-carbon options and the creation of clean and decent employment opportunities for the poor. These include:
 - **City activities on green tourism.** The cities already had an interest in promoting an eco-friendly urban tourism profile. In Chiang Mai, most establishments (hotels and restaurants) already rent out bicycles

which tourists can use to go around the city centre. External support garnered from these stakeholders helped CMM further its vision of becoming a low-carbon city.

In addition, Hue has package tours such as ‘Impressions of green Hue City’ through cyclos and bicycles. During festivals, the local youth environmental organisation organises a 2–3 hour tour in which volunteers introduce tourists to bike routes and the architectural features of Hue City, which also include selected garden houses.

As explained in previous sections, despite existing policies to promote and preserve garden houses, these heritage sites are usually not part of the tourist route. The SUT project provided evidence to support the benefits of garden house preservation policy and highlighted the potentials of garden houses in promoting green urban tourism.

“Garden house [are] interesting places to visit and [you can] learn more about the history, culture and environment [of Hue]. Developing garden houses for tourist and visiting those places could raise people’s awareness about the city.”

– Mr Truong Quang Trung, a youth member of Hue City who founded the Hue City tour

- **Public–private partnerships.** Local NGOs such as the Centre for Encouragement of Self Reliance (CESR) in Hue have been providing seed capital and low-interest loans for the local people in Hue to expand their business, as investment and for other socioeconomic enhancement opportunities. The Hue City Centre for International Cooperation is responsible for assisting, advising and directing the activities of CESR. All the loans are disbursed by CESR and the Hue City Centre for International Cooperation helps CESR connect with the communities by working with community leaders, who receive the loans. CESR had already disbursed loans to garden house families in Huong Long and Kim Long wards for refurbishment, development and maintenance of the garden houses. The project saw the importance for Hue City to be conscious of the partnership as a way to support garden houses.
- **Relevance of the issue to the city’s long-term development plan.** Both cities recognise tourism as an important economic driver and adhere to the principles of SUT. CMM already had a vision to become a low-carbon city. To realise this it used the SUT model, characterised by modal shifts to greener travel to enhance the city’s sustainability and reduce overall greenhouse gas emissions. CMM focused its development planning toward this direction and has received other external funding support such as from GEF. On the other hand, Hue City is able to boost tourism while retaining the city’s cultural heritage by promoting garden houses.

6. Challenges to project implementation

1. **Small- to medium-sized cities often lack the skills and resources for scientific assessment.** Cities usually lack institutional capacity in performing scientific assessment such as estimation of greenhouse gas emissions. Technical skills and capacity building of human resources in compiling, analysing and managing data can be leveraged through partnership with research institutions. Technical support provided by the Asian Institute of Technology and the Hue University of Sciences for CMM and Hue City was essential for the cities in calculating their greenhouse gas emissions from the tourism sector.
2. **Data collection for greenhouse gas emissions estimation can be daunting.** The estimation of greenhouse gas emissions requires gathering of vast amounts of data, which often come from several organisations, individuals and external sources. It can be difficult to obtain data immediately, which is crucial for a project working to a specific timeline. It can also be challenging to acquire all the relevant data to complete the emissions estimations. The involvement of the project partner from the municipalities greatly assisted in addressing the data collection. However, once it is done once, it is relatively easy to update the information in future.
3. **Maintaining local authorities’ interest in the project can be difficult.** Local authorities like CMM and Hue City Centre For International Cooperation often have many other infrastructure and local development projects to oversee. This project required active engagement of the local authorities during data collection, planning and consultation, among others, from the project’s inception until its completion stage. It was sometimes challenging to retain their interest and continued support in all or even some of the project activities. The SUT

project was fortunate in that its main focus was linked to the two cities' municipal policies and for Chiang Mai, it was also linked to a larger World Bank project.

4. **Resources to implement recommended mitigation options are needed from other stakeholders.** Mitigation options require investment for implementation. Both cities faced challenges in implementing their recommended mitigation strategy. CMM needed to find reliable sources that can support and develop NMT at Three King Monument Square, while Hue City also needs to promote garden houses at Huong Long and Kim Long wards by getting support from the Vietnam Government or other sources.
5. **Sustainability.** The sustainability of a project depends on the achievement of expected outcomes, which in turn depends mainly on policy-makers' implementing the policy recommendations. In addition, project implementation cannot be carried out without support from the stakeholders and local communities. Only if communities show serious interest in implementing NMT in Chiang Mai and promoting garden houses in Hue will policy-makers be likely to achieve the project outcomes.
6. **Demonstration of results.** Unless the proposed strategies and recommended options are implemented and results are demonstrated, interest in the cities can disappear and there will be less motivation to pursue their objectives in the future. Furthermore, it will be difficult to persuade other cities to emulate such initiatives.

7. Lessons learned

1. **One project may not be able to bring about a sea change in policy, but it can provide positive feedback and reinforcement toward desired directions.** For example, Hue City already had a policy for preservation of its garden houses that was not very effective mainly due to dreadfully slow administrative formalities. Although the re-evaluation of the current state of Hue garden houses is being done, many garden houses are in danger of being eroded over time as the owners are not able to receive the support for their maintenance and renovation in time. This study was crucial in stimulating the interest of Hue City authorities in the importance of estimating greenhouse gas emissions and implementing mitigation measures. The result strengthened and re-confirmed their commitment to act on such issues.
2. **Champions are important.** Any venture is likely to succeed if it has the interest and support of top authority. Obtaining buy-in of the top authority into the process is important to gain institutional backing and wider support, and top officials in both cities were interested in the project. For example, the vice-chair of the People's Committee of Hue was keen to push for environmental projects, and he used the SUT project to further his directions towards a 'green Hue'. Similarly the Mayor of Chiang Mai was keen to work toward low-carbon development options, and this project pushed his vision further.
3. **Building and sustaining partnerships with related organisations is crucial.** This SUT project adhered to the principle of building partnerships with NGOs and other stakeholders. Hue City has now started working closely with local NGOs such as CESR, encouraging them to disburse loans to garden houses in other wards (Phu Cat, Thuan Hoa and Vy Da) so that they may also be able to earn income through tourism activities in their garden houses.
4. **A successful project can generate positive spin-offs.** The SUT project has generated support for follow-up projects and activities in both the cities. Hue City authorities have proposed a project titled 'Environmental improvement and greenhouse gas emissions in traditional markets in Hue City, Vietnam' to the project office in Yokohama City, Japan. Similarly, in Chiang Mai, the SUT project helped bridge the transformation of climate information data into actual practice. To some extent, the SUT project functioned as an initial catalyst

“ We all know the problem of air pollution, traffic jams and road safety. The sustainable urban transport project is the first that tackles those threats seriously. However, it is those who love Chiang Mai that truly make the change. Let us act for our health, our city, our future. Whether younger or elders, citizens or tourists, let us join hands for a better Chiang Mai. Let's act!”

– Mr Tassani Buranupakorn, Mayor,
Chiang Mai Municipality

and served as a discussion platform for the GEF-project on integrated land use and sustainable urban transport planning.

5. **A participatory approach pays.** The project's participatory nature entailed researchers, local authorities, NGOs and locals working together for an efficient sustainable urban development solution in the city. Almost all stakeholders were involved from the beginning of the project – providing data for the calculation of greenhouse gas emissions, such as the TSPs (i.e. hotels, restaurants, travel agencies and others), participating during the meeting to prioritise the greenhouse gas mitigation options, and suggesting policy options.
6. **Successful projects can create pathways to other low-carbon development options.** The success of the SUT project and the level of awareness and discussions it was able to generate paved a way toward more low-carbon-related initiatives in the city. Chiang Mai has realised that the development of an NMT area must go hand-in-hand with a general understanding of – and willingness to – switch to a low-carbon lifestyle. For example, Chiang Mai plans to set up the Chiang Mai City Council for Climate Change to promote low-carbon campuses and to prepare a low-emissions development strategy for participating universities. To this end, it plans to launch related activities and implement such strategies for academic institutes and promote it internationally to increase Chiang Mai's vision of becoming a low-carbon city.
7. **Activities need to be linked with local government plans and policies for buy-in and scale up.** A key challenge lies in understanding the extent to which project activities reflect and address existing local government policy and priorities. Two of the policy recommendations for low-carbon development included the development of an NMT area in CMM and the promotion of garden houses for tourism in Hue. At the local level, CMM had a policy to set aside 4% of its total area for NMT zone, which increased to 10%. Similarly, Hue already had a policy on management and protection of Hue garden houses. The project used existing contexts to provide its policy recommendations for achieving local authority buy-in for a policy change.

“It will cost billions [Vietnamese Dong] for preserving and repairing [garden house] while if any, we can only get 100 million. It is impossible to fix it.”

– Mrs Pham Thi Tuy (at 22/3 Phu Mong, Kim Long Ward) whose garden house is over 110 years old.

Endnotes

- 1 UN-HABITAT (2011) *Cities and climate change: global report on human settlements*. United Nations Human Settlements Programme, Kenya: Earthscan.
- 2 World Travel and Tourism Council (WTTC, 2013a) *Travel and tourism economic impact 2013: Thailand*. http://www.wttc.org/site_media/uploads/downloads/thailand2013.pdf
- 3 World Travel and Tourism Council (WTTC, 2013b) *Travel and tourism economic impact 2013: Vietnam*. http://www.wttc.org/site_media/uploads/downloads/Vietnam2013.pdf
- 4 United Nations Environment Programme and World Tourism Organization (2012) *Tourism in the green economy – background report*. UNEP and WTO. http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Tourism%20in%20the%20green_economy%20unwto_unep.pdf
- 5 Gössling, S., Peeters, P., Ceron, J.P., Dubois, G., Patterson, T., and Richardson, R.B. (2005) 'The eco-efficiency of tourism', *Ecological Economics* 54(4): 417–434.
- 6 Perch-Nielsen, S., Sesartic, A. and Stucki, M. (2010) 'The greenhouse gas intensity of the tourism sector: The case of Switzerland'. *Environmental Science and Policy* 13: 131–140.
- 7 Tourism service provider (TSP) refers to entities such as hotels, restaurants, tours and travel operators and other activities (including spas, travel agencies, etc.) responsible for providing goods and services related to the tourism industry.
- 8 'Hue: A green, clean and beautiful city. Sustainable urban tourism through low-carbon initiatives: Experiences from Hue and Chiang Mai', in, Sustainable Urban Tourism: Working for low-carbon initiatives (Blog). http://sutourism.files.wordpress.com/2012/03/brochure_hue_sumernet-cdkn_project.pdf
- 9 Sustainable Urban Tourism: Working for low-carbon initiatives (Blog) www.sut.ait.ac.th
- 10 Hue University of Sciences, Department of Environmental Science. 'Khoa Moi Truong' (in Vietnamese) http://khoamoitruonghue.edu.vn/modules.php?name=News&op=vi_ewst&sid=304
- 11 Owen, U.N. (2010) 'Chiang Mai Sunday Cycling Club', in Bicycle Thailand (Website) <http://bicyclethailand.com/chiang-mai-sunday-cycling-club>
- 12 Kumar, S., Kusakabe, K., Pravarkar, P., Shrestha, P., Goteti, S., Tuan, T.A., Meteejaroenwong, E., Suwanprik, S., and Linh, K. (2014) 'Greenhouse gas emissions from tourism service providers: case studies in Chiang Mai, Thailand and Hue, Vietnam', in Lebel, L., Hoanh, C. T., Krittasudthacheewa, C. and Daniel, R. (eds) *Climate risks, regional integration and sustainability in the Mekong Region*. Selangor, Malaysia: Strategic Information and Research Development Centre.
- 13 Kusakabe, K., Shrestha, P., Kumar, S. and Linh, K. (2014) 'Pathways to sustainable urban tourism: Garden houses in Hue, Vietnam'. *International Journal of Sustainable Society*.
- 14 Asian Institute of Technology (2013a) 'Towards green pathway – Chiang Mai Municipality'. Policy Brief. Pathum Tani, Thailand: Asian Institute of Technology. http://sutourism.files.wordpress.com/2013/02/updated-green-pathway-policy_brief_cm_february.pdf, http://sutourism.files.wordpress.com/2013/02/updated-policy-brief_hue_february.pdf
- 15 Bilan Carbone® is a Excel spreadsheet developed by French Agency for Environment and Energy Management (ADEME) to calculate greenhouse gas emissions of local authorities, companies and territories. It provides greenhouse gas emissions in carbon or CO₂e in kg or ton. More information is available at <http://www.terre.tv/?lang=en&vid=1151> and at www.ademe.fr.

- 16 Stakeholders in this study refer to representatives from various organisations, such as tour operators, researchers, business association, media, etc., who are related to the tourism sector. Some examples of stakeholders in Chiang Mai included guide associations, provincial tourism and sport offices, and restaurant clubs, while those in Hue included a youth union, garden house owners, an association of entrepreneurs and Hue University.
- 17 Office of Strategy Management, Upper Northern Provincial Cluster 1 (OSM North, 2011) Basic information about north provinces. <http://www.osmnorth-n1.moi.go.th/admin/aboutus/17.pdf>
- 18 Department of Tourism (2012) International Tourist Arrivals in Thailand 2012. Bangkok, Thailand: Government of Thailand. <http://tourism.go.th/index.php?mod=WebTourism&file=details&dID=7&clD=276&cdD=620>
- 19 Information and Communication Technology Centre, Office of the Permanent Secretary, Ministry of Transport, Bangkok, Thailand. <http://www.mot.go.th>
- 20 Kumar et al. (2014) Op. cit.
- 21 Ibid.
- 22 Adebambo, S.O. and Yetunde, S.F. (2010) 'Evaluation of non-motorized transport (NMT) system in the movements of market wares in a medium sized city of a developing economy'. *American Journal of Scientific Research* 11: 72–85.
- 23 Asian Institute of Technology (2013a) Op cit.
- 24 Ibid.
- 25 General Statistics Office, Government of Vietnam. http://www.gso.gov.vn/default_en.aspx?tabid=467. Accessed 26 October 2015.
- 26 Thua Thien Hue Government (2012) 'Thua Thien-Hue: 10/13 socio-economic indicators in 2012 primarily achieved or exceeded.' http://www1.thuathienhue.gov.vn/PortalNews/Detail/16684/Thua_Thien_Hue_1013_chi_tieu_KT-XH_chu_yeu_nam_2012_dat_va_vuot_ke_hoach.html
- 27 Ministry of Industry and Trade (2013) 'Thua Thien Hue faced with challenges'. Government of Vietnam. <http://www.baocongthuong.com.vn/du-lich/30514/nam-2013-nganh-du-lichthua-thien-hue-doi-mat-voi-kho-khan.htm#.UoBIX3BaXz4>
- 28 Converted into USD with average annual exchange rate as given in <http://data.worldbank.org/indicator/PA.NUS.FCRF/countries?display=default>
- 29 Cong Thuong (2012) 'Thua Thien-Hue "market demand" for tourism development'. <http://www.baocongthuong.com.vn/du-lich/19568/thua-thien-hue-cau-thi-de-du-lich-phat-trien.htm#.UtSeiNJTU9R>
- 30 Hue City (2013) 'Economic situation in 2012'. http://www.huecity.gov.vn/?cat_id=192
- 31 Thua Thien Hue (2013) The number of day visitors and customers. <http://www.baothuathienhue.vn/DichVu/ThongTin/CapNhat/prints.aspx?NewsID=2-0-38839>
- 32 Netherlands Climate Assistance Programme (2005) *Climate change impacts in Huong River*. Leusden, The Netherlands: Netherlands Climate Assistance Programme.
- 33 Ibid.
- 34 Kumar et al. (2014) Op. cit.
- 35 Ibid.
- 36 Duc, T.B. (2009) 'Tourism industry responses to the rise of sustainable tourism and related environmental policy initiatives: The case of Hue City, Vietnam'. A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy (PhD). Auckland University of Technology, New Zealand.
- 37 Kusakabe, K., Shrestha, P., Kumar, S. and Linh, K. (2014, in press) Pathways to sustainable urban tourism: Garden houses in Hue, Vietnam. *International Journal of Sustainable Society*.
- 38 Ibid.
- 39 Ibid.
- 40 Asian Institute of Technology (2013b) 'Preservation of garden houses for sustainable urban tourism – Hue City'. Policy Brief. www.sut.ait.ac.th
- 41 Ibid.
- 42 IPCC AR4 WG3 (2007) Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, in Metz, B., Davidson, O.R., Bosch, P.R., Dave, R. and Meyer, L.A. (eds) *Climate Change 2007: Mitigation of Climate Change*. Cambridge, UK and New York, NY: Cambridge University Press. http://www.ipcc.ch/publications_and_data/ar4/wg3/en/contents.html
- 43 Mulugetta, Y. and Urban, F. (2010) 'Deliberating on low carbon development'. Viewpoint. *Energy Policy* 38: 7546–7549.



www.cmcity.go.th



www.thuathienhue.gov.vn



AIT
Asian Institute of Technology

www.ait.ac.th



Climate & Development
Knowledge Network

www.cdkn.org

e: enquiries@cdkn.org

Funded by:



Ministry of Foreign Affairs of the
Netherlands

t: +44 (0) 207 212 4111

This document is an output from a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of or endorsed by DFID or DGIS, who can accept no responsibility for such views or information or for any reliance placed on them. This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. You should not act upon the information contained in this publication without obtaining specific professional advice. No representation or warranty (express or implied) is given as to the accuracy or completeness of the information contained in this publication, and, to the extent permitted by law, the entities managing the delivery of the Climate and Development Knowledge Network do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this publication or for any decision based on it. CDKN is led and administered by PricewaterhouseCoopers LLP. Management of the delivery of CDKN is undertaken by PricewaterhouseCoopers LLP, and an alliance of organisations including Fundación Futuro Latinoamericano, LEAD International, LEAD Pakistan, the Overseas Development Institute, and SouthSouthNorth.