HUE GrEEEn CITY ACTION PLAN

Main Report
November 2014

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Abbreviations

ADB	– Asian Development Bank
CAGR	compound annual growth rate
CDCP	– Citadel Development and Protection Committee
CECI	– Canadian Centre for International Studies and Cooperation
DOIT	– Department of Trade and Industry
DONRE	– Department of Natural Resources and Environment
DPI	– Department of Planning and Investment
GCAP	– GrEEn City Action Plan
HCMUARC	– Ho Chi Minh City University of Architecture
HEPCO	– Hue Environmental Protection Company
HUCS	– Hue University College of Sciences
HueWACO	– Hue Water Company
ISET	– Institute for Social and Environmental Transition-International
JICA	– Japan International Cooperation Agency
LED	– light-emitting diode
LID	– low-impact development
MAPSAP	– Mahadevpura Environment Protection and Rejuvenation Trust
MSME	– micro and small and medium-sized enterprises
NGO	– nongovernment organization
PRC	– People's Republic of China
UEPP-UN	– Urban Environmental Planning Program in Viet Nam
UNESCO	– United Nations Educational, Scientific and Cultural Organization

WEIGHTS AND MEASURES

ha	–	hectare
km	–	kilometer
m ²	–	square meter
m ³	–	cubic meter

NOTE:

In this report, “\$” refers to US dollars.

\$1 = D21, 000 (Vietnamese Dong)

as of November 2014

Map 1: Thua Thien Hue Province

Source: ADB.

Map 2: Hue City

Source: ADB.

Executive Summary

Hue city and Thua Thien Hue province formulated a vision for integrated, sustainable development of the city and translated it with assistance from the Asian Development Bank (ADB), into this time-bound action plan, the GrEEEn City Action Plan (GCAP) of Hue city, Viet Nam.

The GrEEEn Cities approach responds to the challenges of rapid urbanization by integrating urban development with environmental planning to improve livability and resilience. By “doing things differently,” the GrEEEn Cities approach enables cities to respond to environmental degradation, inefficient resource consumption, inequitable growth, and increased risks of climate change and natural disasters. This flexible and scalable approach can be applied at any time in a city’s growth trajectory and at any stage of socioeconomic development.

Business as Usual

Hue city is well-established as an international tourism destination with significant historic assets, including the Citadel and the Imperial City. Featured on UNESCO’s World Heritage List, Hue’s complex of monuments bears witness to Viet Nam’s last imperial dynasty, led by the Nguyen monarchy (1802–1945). Given the quality of the assets, however, the tourism offering is somewhat underdeveloped. The links among the tourist areas and the Citadel are tenuous, and tourist activities are limited. Hue has also not succeeded in promoting strong growth in other economic sectors that would strengthen its ability to withstand downturns in tourism demand. Finally, the decay of key features of the Citadel, including ponds and canals, is outstripping the pace of investment and rehabilitation.

Hue has the opportunity to broaden its economic base, improve the quality of the tourism experience, and lay the groundwork for its future role as a provincial-level city with enhanced authorities and responsibilities. Within the next 2 years, it is planned that Thua Thien Hue province will become Thua Thien Hue city, with provincial-level powers. While focusing largely on the Citadel as Hue’s unique selling point, this GCAP also includes actions focused outside the current administrative boundary of Hue city.

Hue’s Vision for a GrEEEn City

Hue Department of Planning and Investment achieved consensus among stakeholders during the GCAP preparation process. Participation by provincial and city government ensured the commitment necessary to achieve success. Line departments helped to formulate specific proposals and concentrate efforts in specific locations for greater development impact. Private sector and civil society representatives were key to making this a demand-driven action plan.

Hue city aspires to become a highly sustainable, world-class tourist destination. The competitiveness of Hue’s economy will derive from the strength of its tourism offering, which in turn is based on historic preservation. Tourism will drive

the development of services such as lodging, food and beverage, culture and entertainment, and handicrafts. Moreover, tourism will combine with health care and education to broaden and strengthen the services sector in general. Services, not manufacturing, is the targeted economic base of the future Thua Thien Hue city.

Environmental improvement is key to the development of the tourism sector and to improving the quality of life for Hue's residents. The Hue City People's Committee will drive forward the expansion and improvement of urban environmental infrastructure (stormwater, wastewater, and solid waste), the rehabilitation and preservation of key environmental assets (riverfront, ponds, and lakes), and the development of environmentally friendly transport services and green district development.

The vision for the future of Hue includes but is not limited to the rehabilitation of the Citadel. Many of the environmental and tourism-related improvements will focus on the Citadel. New sustainable districts will be developed in other parts of the city in order to expand the urban structure and provide new mixed-use venues for growth of the service sector. Improvements to urban environmental infrastructure will be undertaken across the urbanized area, not only in the Citadel.

The People's Committees of Thua Thien Hue province and Hue city will implement the following initiatives in service of its vision:

Initiative 1: Improve the urban environment

Initiative 2: Enhance the tourism experience

Initiative 3: Develop sustainable transportation in newly expanded Hue city

Each initiative incorporates economic, environmental, and social development features that are mutually reinforcing.

Enablers

A protection and development committee for the Citadel will bring together the major stakeholders and ensure the development in the Citadel will not negatively affect the community and will preserve its unique environment and heritage. The committee can guide the scoping, review, and finalization of the strategic areas to be redeveloped; rehabilitation of ponds and canals; planning and development around these areas; and the alternative transport network development.

To increase the affordability of environmental infrastructure improvements to local residents, a sanitation credit scheme for low-income households will be managed by Hue Women's Union. A total of \$3 million has been estimated as the start-up capital necessary for the start-up of this revolving fund. A community awareness program will complement the credit scheme.

Implementation of the resettlement program for the informal settlers (700 households) located along the walls of the Citadel will also preserve the architectural integrity of the Citadel and will enhance its tourism potential. These households have poor sanitation conditions and their relocation will improve their living conditions. Hue city intends to relocate 350 households during the first phase of this program. Relocation is planned just outside of the Citadel close to households' sources of livelihoods.

Institutional Arrangements

An executive GCAP implementation committee and a project delivery unit will be formed to allow departments to collaborate. Thua Thien Hue province and Hue city will reform their policies in project identification and prioritization, project feasibility analysis, infrastructure finance, and stakeholder engagement. The capacity of local government departments in these areas will also be built.

Cumulative Benefits of the Hue's GCAP

The design of the GCAP enables Hue city to achieve cumulative benefits that are greater than the sum of the benefits of individual actions. Cumulative benefits result when multiple complementary actions—including capital improvements, regulatory changes, and institutional changes—are implemented in the same spatial and time frame. The set of hard and soft actions in Hue's GCAP will drive sustainable development of the Citadel and the new green districts, resulting in a cleaner environment, amenities for citizens, tourism investment and jobs, and increased value of real property.

In addition to greater economic return, this integrated approach will also enhance the livability of Hue city for residents and visitors. People will be living in a cleaner, more pedestrian-friendly environment with greater choices for recreational and cultural activities. Their exposure to pollution and waterborne diseases will be reduced, and their economic opportunities will broaden. In this way, the GrEEEn Cities approach results in a place of higher value that improves quality of life.

Action Plan Summary

Action	Year					Cost (US\$)	Anticipated Benefits
	1	2	3	4	5		
Initiative 1. Improve the urban environment							
Develop wastewater collection and treatment system						300,000,000	Cleaner surface water bodies → public health and tourism
Rehabilitate ponds and canals						22,200,000	Less flooding, greater resilience, property values ↑
Improve the Citadel drainage system						9,500,000	Less flooding, greater resilience
Develop a landfill in Huong Binh						10,000,000	Cleaner environment → public health
Develop energy-efficiency street lighting						2,500,000	Lower greenhouse gas emissions
Improve city-wide water quality monitoring						1,000,000	Higher capacity to manage water quality
Promote Low Impact Development						200,000	Less flooding, greater resilience
Initiative 2. Enhance the tourism experience							
Expand the range of tourist activities						300,000	Tourism growth and economic multiplier effects
Plan the redevelopment of strategic areas in Citadel						1,000,000	More tourists, property values ↑
Develop new crafts market in Thuy Xuan						5,000,000	Longer tourist stays
Expand "Hue by night" offering						3,000,000	Tourism growth and economic multiplier effects
Develop more nonmotorized transport in the Citadel						To be determined	Lower greenhouse gas emissions per kilometer travelled
Initiative 3: Develop sustainable transportation in newly expanded Hue city							
Develop peripheral parking facilities						4,100,000	Less congestion, more livable
Build new roads to green districts						70,000,000	Faster growth of service industries
Promote bicycle use in the city center						To be determined	Increased investment, more tourism
Develop new tram line						To be determined	Lower greenhouse gas emissions per kilometer travelled

● Economic benefit ● Environmental benefit ● Equity benefit

Source: Asian Development Bank.

Background

Hue city and Thua Thien Hue province formulated a vision for integrated, sustainable development of the city and then translated it with assistance from the Asian Development Bank (ADB) into this time-bound action plan, the GrEEn City Action Plan (GCAP) of Hue city, Viet Nam.

The GCAP embodies ADB’s new GrEEn Cities approach to urban development, which uses a 3E lens (environment, economy, and equity) approach to develop cities that are green, competitive, and inclusive. GrEEn Cities strive for more than environmental sustainability. It is not only about reducing carbon emissions and conserving resources. It is also about improving quality of life and creating business opportunities throughout the entire economy.

The GrEEn Cities approach responds to the challenges of rapid urbanization by integrating urban development with environmental planning to improve livability and resilience. By “doing things differently,” the GrEEn Cities approach enables cities to respond to environmental degradation, inefficient resource consumption, inequitable growth, and increased risks of climate change and natural disasters. This flexible and scalable approach can be applied at any time in a city’s growth trajectory and at any stage of socioeconomic development.

GrEEn Cities enable partnerships among local governments, civil society, community residents, the private sector, industry, and small and medium-sized enterprises. These partnerships identify and implement solutions for improving the quality of life, increasing competitiveness, and managing climate change and natural disasters, without compromising social equity.

GCAP identifies a city’s major assets and its unique selling point. It then sets out a number of focused initiatives to preserve, enhance, or leverage the unique selling point in

Figure 1: LivabilityTriangle

Source: Sandhu Chand, S. and Naik Singru, R. 2014. Enabling GrEEn Cities: An Operational Framework for Integrated Urban Development. *Southeast Asia Working Paper Series* No. 9. Manila: Asian Development Bank.

order to achieve the city’s vision. Each initiative has distinct hard-side and soft-side actions that work together to transform places and generate more value for the city, the economy, and the local population. The capital projects are identified taking into account existing investment programs to optimize the use of financial resources.

Implementing 3E urban plans requires inputs from a broad range of stakeholders. The GrEEn Cities approach emphasizes building a consensus among the parties involved in managing green, competitive, and inclusive cities. Teamwork among government, private sector, and civil society stakeholders is essential for creating and implementing the GCAP.

Thua Thien Hue Department of Planning and Investment achieved general consensus among stakeholders during the GCAP preparation process. Participation by provincial

Figure 2: GrEEEn Cities Operational Framework

Source: S. Sandhu, and R. Naik Singru, 2014. Enabling GrEEEn Cities: An Operational Framework. Southeast Asia Department Working Paper Series No. 9. Manila: Asian Development Bank.

and city government ensured the commitment necessary to achieve success. Line departments helped to formulate specific proposals and concentrate efforts in specific locations for greater development impact. Private sector and civil society representatives were key to making this a demand-driven action plan.

This GCAP was prepared under an Asian Development Bank (ADB) regional technical Assistance, Green Cities: A Sustainable Urban Future for Southeast Asia, which is aligned with ADB's policies and sector priorities, including the *Urban Operational Plan 2012–2020*, *Water Operational Plan 2011–2020*, *Environment Operational Directions 2013–2020*, ADB's *Urban Sector Assessment, Strategy, and Road Map for Viet Nam*, and the *Viet Nam Country Partnership Strategy 2012–2015*.¹ The GCAP sets the framework for the preparation of a new results-based loan project,

Secondary Cities Development Program (Green Cities), in which Hue is one of three participating cities.

The GCAP begins with a description of existing conditions and trends in Hue and the development challenges they pose (“Business as Usual”). Next it sets out the vision for the development of Hue, which was formulated by local stakeholders during a workshop in 2013. Based on the vision, the GCAP defines three initiatives, each of which includes a number of capital investments, other actions, and enabling measures. The final sections of the GCAP discuss partnerships, implementation arrangements, economic impacts, and performance monitoring.

A separate volume presents detailed assessments of local economic, environmental, and social conditions.

¹ ADB. 2013. *Urban Operational Plan, 2012–2020*. Manila; ADB. 2012. *Country Partnership Strategy: Viet Nam, 2012–2015*. Manila; Ministry of Planning and Investment. 2011. *Socio-Economic Development Strategy, 2011–2020*. Ha Noi: Government of Viet Nam; Viet Nam National Assembly. *Socio-Economic Development Plan*. Ha Noi: Government of Viet Nam; Government of Viet Nam. 2012. No. 1659/QĐ-TTg: *Decision on the Approval of the National Program on Urban Development in 2011–2020 Period*. Ha Noi. 7 November.

Business as Usual

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The following sections discuss existing conditions and trends in Hue with regard to environment, economy, and equity.

Photo: R. Singru

The Imperial City.

Environment

Framed on the west by mountains and on the east by lagoons and the sea, Hue's natural setting is among its greatest assets. Hue city developed along the Huong River (Perfume River), which flows past the many tombs and pagodas of the Nguyen dynasty on the right bank and then to the Citadel and Imperial Palace in the city center. Downstream, the Huong leads to rich spawning grounds of the lagoons and finally to wide and attractive coastal beaches.

Water Supply

Water is generally abundant, but there are water quality issues due to contamination in some areas. Water supply is short during the summer months due to changing precipitation patterns. Most of the raw water is pumped from the Huong river. Households also abstract groundwater from an aquifer, but the exact quantity is not known. The city's water supply is managed by the Hue Water Company (HueWACO), which has seven subcompanies to manage different geographical areas of the Thua Thien Hue province as a whole.²

Water supply demand is projected to rise from 148 cubic meters per day (m³/day) in 2014 to 240 m³/day by 2030. About 99.6% of the population has piped water supply. All households have water meters. Hue has developed public drinking water fountains in train stations, parks, and areas of tourist interest.

The government plans to develop water treatment stations to cater to demand by 2030. The old Da Vien Water Treatment Plant, which supplies a limited quantity of water, is slated for closure. Quang Te 1, Quang Te 2, and Quang Te 3 treatment plants are progressively being expanded to meet the city's water supply requirements. The treatment plant comprises chemical dosing, flocculation, sedimentation, and filtration as their main processes. A sophisticated online monitoring system ensures proper operations and quality of water supplied.

Consultations with HueWACO yielded valuable inputs to the GCAP preparation. The capital projects that

Photo: Vaideeswaran S.

Public water fountain.

HueWACO is implementing with ADB financing (under MFF-0054-VIE) complement the environmental improvements in this GCAP. The HueWACO model should be used as a model for water companies in other GCAPs.

Domestic Wastewater

Domestic wastewater is not collected or treated in the city. The domestic wastewater flows through the stormwater drains and is discharged into the Huong river, canals around the Citadel, ponds, and lakes such as the Tinh Tam lake. Private companies collect sewage from septic tanks and deposit it in landfills. From commercial areas—particularly the slaughterhouse and vegetable markets—high organic wastewater is discharged without proper prior treatment. For this growing city, the absence of a domestic wastewater system is a major constraint. There is a need for a waste collection system separated from stormwater drains and for treatment plants on both sides of the Huong river.

² Under ADB-financed MFF-0054-VIE, ongoing water supply improvements that address the needs of Thua Thien Hue province include a new water treatment plant, pumping stations, and expansion of the distribution network.

Hue Environmental Protection Company (HEPCO) manages the city's domestic wastewater system. With financing from the Japan International Cooperation Agency (JICA), HEPCO is currently developing a domestic wastewater collection network and a treatment plant on the south bank of the Huong river. Costing about \$250 million, this network is expected to cater to most of the 120,000 people living in the south. Construction work is ongoing, and completion is expected by 2016. As a part of the JICA project, the design of the domestic wastewater collection network and treatment system on the north bank will also be undertaken. This is presently at the prefeasibility stage. HEPCO and the city and provincial People's Councils intend to expand the domestic wastewater collection network and associated treatment plants progressively to cover the whole urbanized area.

Drainage and Flood Control

The city's stormwater drainage system is often unable to accommodate the surface water run-off during the rainy season, which extends each year from September to February, with particularly high levels of precipitation in October and November. Thua Thien Hue province is considered to be the most prone to flooding in Viet Nam. Located on the river bank, the city is exposed to flooding hazards. In addition to high precipitation levels, flooding is aggravated by the release of rainwater stored in three reservoirs and the many upstream dams. The city's gradient is almost flat, with slopes of less than 5% slope in the eastern part and more than 20% in the western mountainous part. Flooding is more frequent in the southern parts of the city, including the newer areas of development where the earlier low-lying land cultivated as rice fields are being urbanized. Xuan Phu, a relatively recent development area with a good drainage system, is prone to flooding due to its topography. In the north, the areas that are particularly prone to flooding include those surrounding the Citadel, including Phu Cat, Phu Hiep, and Huong So. About 50 families in the Citadel live in a location that blocks the drains, and this has been identified as the main cause of floods in that area. Under the JICA project, the stormwater drainage system is presently being strengthened on the southern bank, and plans to upgrade the drainage system to the north bank are underway.

Given the regular and frequent flooding, the Hue city Committee on Flood and Storm Control takes a number of steps to control, respond to, and recover from flood incidents. Climate change has resulted in an increase in the intensity of rains and the incidence of floods (there were five flood incidents in 2013). Postflooding environmental pollution issues include water and soil contamination.

Figure 3: Wards and Communes within Hue City

Source: Thua Thien Hue Province website: <http://www1.thuathienhue.gov.vn/Upload/LANDMAP/tphue.jpg>

Cultural area inundated by flooding.

Photo: R. Singru

Solid Waste

Hue is regarded as a national leader in solid waste management. About 95% of the waste generated is presently being collected and transported. Compactors and sweeper trucks collect garbage between 6:00 p.m. and 6:00 a.m. each day. Dustbins, tricycles, hand carts, and containers are also used, along with water trucks. In 2013, the domestic solid waste collected was 96,705 tons (about 260 tons/day) of municipal solid waste for landfilling and 31,903 tons (about 80 tons/day) of hazardous waste for incineration. Of the domestic solid waste collected, about 57% is transformed into compost, which is operated by a private contractor who sells it to a rubber company as a soil conditioner for plantations in the highlands. Small, private enterprises recycle the waste before it is deposited in the landfill. A limited amount of rag-picking both in the collection system as well as in the landfill also occurs. Medical waste is collected and transported to the incinerator of the Hue Central Hospital. Presently, the treatment is basic and needs improvement.

An 8-hectare (ha) landfill at Thuy Phuong serves as a waste disposal area, with a capacity of 300 m³/day. The landfill uses leachate collection and biological treatment before final discharge. After the closure of this landfill by 2015, plans are being made for the expansion of Phu Son landfill at Huong Thuy town (about 20 kilometers away from the present site), which will have a land area of 24 ha and an anticipated service life of 20 years. This landfill will also use leachate collection and treatment before disposal, as well as a domestic waste incinerator. Another landfill, Huong Binh in Huong Tra town, is also being planned on a 40-ha site. This will cater to the northern parts of the city, including the Citadel.

Industrial Waste

Neighboring communities have been concerned about the air and water pollution caused by a large cement plant, which releases wastewater to the Huong river. Other industries include a beer brewery and a seafood packaging factory that also release wastewater into the Huong river. Industries dispose their hazardous waste in the Loc Thuy landfill, which serves as the waste disposal area for the province as a whole. Presently, Hue city does not have a separate hazardous waste disposal site. A number of small and medium-sized enterprises are also pollutants. In particular, the bronze industry is a major polluter.

Photo: R. Singru

Flooded city street.

Photo: Vaideeswaran S.

Street-side waste management.

Photo: Vaideeswaran S.

Sanitary landfill in operation.

Biomedical Waste

Being a health care center for the province, Hue city generates substantial quantities of biomedical waste. These are taken by authorized collection agencies to the Phu Son landfill at Huong Thuy town, where a 500 kilogram/hour biomedical waste incinerator has recently been installed. The process of collection, transport, and disposal of biomedical waste is well managed. In addition, another incinerator is being planned through JICA.

Air Pollution

Studies have revealed that the concentration of suspended particulates, sulfur dioxide, carbon dioxide and mononitrogen oxides in the industrial zones are higher than in urban areas. This concentration is also higher in downtown areas than in the suburbs. Along the main roads (National Highway 1A, 49 and the bypass), the concentration of suspended particulate is high. It is clear that the rapid increase in the traffic in and around the city is causing the deterioration in the ambient air quality. Urban air quality is also deteriorating due to industrial emissions, including from the cement factory.

Energy-Efficiency and Low Carbon Initiatives

In line with the requirements of the national law on energy saving and efficiency, Hue University anchored a city initiative titled “Low Carbon Cities in Asia—Hue City, Vietnam.” A range of activities was carried out to encourage the residents to change their behavior and raise their awareness on energy efficiency. More awareness-raising campaigns are needed, guidelines on water and energy efficiency should be provided, and good water conservation and energy efficiency practices should be promoted.

The city government piloted the use of energy-efficient light-emitting diode (LED) lighting, which was however not rolled out for lack of financial resources. The use of solar panels for street lighting was also regarded as too expensive and therefore discontinued. The government recognizes that the switch to LED technology for street lighting will bring down energy consumption significantly.

Green Spaces and Landscaping

Hue city complies with the national regulations regarding the quantity of public green spaces. Hue city’s public

green spaces are greater than the standard of 10 square meters per person. However, the green spaces should be better integrated with the historic and cultural conservation areas, and ecological assets such as the riverfront, ponds, and lakes should be better preserved.

Environmental Awareness

Citizens’ environmental awareness requires further strengthening. In some districts, garbage is disposed of in the drains, which leads to flooding. Maintaining a green city will need greater citizen awareness that needs to be established through a changed mindset and behavior.

Environmental Monitoring

Two systems are in place for environmental monitoring. First, samples are periodically taken and tested in the laboratory of the Department of Natural Resources and Environment to check the ambient air and water quality. Second, automatic testing is done for both air quality (one station in the center of the city) and water quality (for Huong river, downstream of the city center). Currently, soil or land quality is not monitored. Studies have revealed that the concentration of heavy metals such as cadmium and total nitrogen are relatively high but within the permissible exposure limits of the National Technical Regulations.

Economy

Hue’s demographic and economic growth has been modest in recent years. From 2009 to 2013, the annual average population growth was 1.1%, which was among the lowest in Class 1 cities in Viet Nam. Much of the population growth in Hue city may be a result of urbanization, where people have moved from the rural areas of Thua Thien Hue province to Hue city. The population in rural areas around Hue has actually declined by -0.5% during the same period.

The change in the economic base for Hue has been consistent with the slow rate of urbanization. Over a 7-year period from 2005 to 2012, agriculture has slowly declined by 6%, giving up more jobs to the services sector (+4%) rather than to the industrial sector (+2%). This reflects the tourism potential of Hue city.

The output of the foreign direct investment sector has also grown by 28% over this period, but the growth into this sector has declined considerably over the past 4 years. The number of foreign investment enterprises in Thua Thien Hue province increased only marginally in 2008–2012, from 21 to 23 enterprises.

This is despite the fact that the province has had a focused strategy to increase large manufacturing. The land area allocated to industrial parks in Thua Thien Hue province is planned to increase tenfold between 2010 and 2020. Five new industrial complexes have been identified since 2005 and are at various stages of planning and development. The level of land leasing at these complexes has been very slow, especially in the newest complexes.

In the nonstate sector, most of the employment in Thua Thien Hue province is concentrated in the manufacturing (34%), light manufacturing (6%), construction and real estate (16%), hospitality (5%), and services sectors (13%). While manufacturing and light manufacturing are mainly located outside Hue city, much of the construction, real estate, and hospitality activity are concentrated within city boundaries. With the economic downturn, the construction and real estate market is expected to slow over the next few years, making tourism the main growth engine for the local economy.

Tourism, captured in hospitality and services, has grown at a rapid pace in Hue city; the city hosted 1.55 million tourists in 2011. Tourism has consistently increased over the last 6 years with an 11% average annual growth rate. The average length of stay for a tourist was 2 days.

The other rapidly growing sectors during this period have been the health, education, and consulting sectors, which are beginning to play an increasing role in Hue's economy. These sectors are mostly concentrated within Hue city. A major contributing factor for their growth has been the large number of educational institutions, many of which are located in the city center.

A significant portion of the employment in each of the above sectors comes from the small and medium-sized enterprises. Almost 92% of the manufacturing sector; 100% of the light manufacturing sector; 97% of the construction and real estate sector; 98% of the hospitality

sector; and 100% of the health, education, consulting sectors comprise small and medium-sized enterprises. The transition to a services-based economy has been occurring more slowly in Hue than in most Class I cities.

In terms of municipal finance, Hue city has posted a loss every year for the last 5 years. While the city's revenue has increased at a steady rate of 24% over the last 5 years, its expenditures have outpaced revenue and have increased at 31%. The annual deficit amounted to almost D340,000 million (\$16.2 million) in 2011 and was covered by the state.

Revenue from tourism has been growing. Tourism revenue in 2011 amounted to slightly more than D1 trillion (\$4.8 million) and has increased by 136% from 2007 to 2011. Almost 60% of this revenue was from hotel room rentals, and another 20% from food service.

Despite this weak financial position, Hue city continues to plan major capital investments, as evidenced by the Hue City Master Plan 2030 and Vision to 2050. The plan has identified and phased \$2.4 billion in transport, disaster prevention, water, wastewater, and solid waste capital improvements. Phase 1 of the plan, to 2020, considers 39 of those projects totaling \$1.15 billion. Many of the investments, especially in transport, focus on increasing infrastructure to attract industry to Hue. Considering past performance, this strategy is fraught with risk. Many of the proposed investments also fail to leverage Hue's major strengths—the Citadel—related tourism, associated services, and education.

Equity

Population

The recorded population of Hue city in 2012 was 345,000, while the population of Thua Thien Hue province was 1.1 million. From 2008 to 2011, the annual average population growth rate for Hue city was 1.1%, which is equal to the national average. The Citadel, within Hue city, is also an inhabited area, home of 65,000 people. The Citadel occupies 520 hectares (about 2.5 kilometers x 2.5 kilometers).

Table 1: Output by Enterprise and Sector (2005–2012)

Item	2005	2009	2010	2011	Prel. 2012	CAGR 2005–2012 (%)	CAGR 2009–2012 (%)
Total Number	12,630,688	27,351,450	37,223,082	49,118,464	57,724,262	21	21
By Type of Ownership							
State	4,794,556	8,319,376	9,674,911	12,734,527	13,945,177	14	14
NonState	6,458,830	215,227,125	21,148,465	28,011,648	33,875,910	23	22
Collective	1,194,338	357,529	421,585	507,360	560,500	-9	12
mSME	5,264,492	14,869,596	20,726,880	27,504,288	33,315,410	26	22
Foreign Investment Sector	1,377,302	3,804,949	6,399,706	8,372,289	9,903,175	28	27

CAGR = compound annual growth rate, mSME = micro and small and medium-sized enterprises.

Source: Thua Thien Hue Statistics Office. 2013. *Statistical Year Book 2012*. Hue: Statistical Publishing House.

Table 2: Thua Thien Hue Province Industrial Complex Status

Category	Phi Bai	Phong Dien	La Son	Tu Ha	Phu Da	Quang Vinh
Extent (1,000 m ²)	8,187	4,000	3,000	2,500	2,500	1,500
Parcel Extent (1,000 m ²)	4,000	2,500	1,800	1,500	1,500	900
Parcel Sale Rate (%)	98		6	6	3	-

– = nil, m² = square meter.

Source: Modification of Hue City Master PLAN 2030.

Table 3: Gross Output by Enterprise, Sector, and Percent Micro and Small and Medium-Sized Enterprises, 2005–2012

Item	2005	2009	2010	2011	2012	%mSE
Total Number	100	100	100	100	100	98
By Type of Ownership						
State	38	30	26	26	24	63
NonState	51	56	57	57	59	99
Collective	9	1	1	1	1	99
Private and Household Business	42	54	56	56	58	99
Foreign Investment Sector	11	14	17	17	17	35
By Sector						
Agriculture, Forestry, and Aquaculture	19	16	15	15	13	99
Manufacturing	28	30	33	35	34	92
Construction and Real Estate	19	18	18	17	16	97
Light Manufacturing	7	7	6	6	6	100
Hospitality	5	5	5	5	5	98
Consulting Services	7	8	11	11	13	100

%mSME = Percent micro and small and medium-sized enterprises.

Source: Thua Thien Hue Statistics Office. 2013. *Statistical Year Book 2012*. Hue: Statistical Publishing House.

Table 4: Tourists to Hue City (2006–2011)

Category	2006	2007	2008	2009	2010	2011
Total Tourists (person)	967,210	1,717,700	1,388,610	1,296,100	1,451,630	1,544,500
Vietnamese (Local)	625,999	600,100	684,714	734,530	844,030	890,720
Foreigner (International)	341,211	571,600	703,896	561,570	607,600	653,780
Average Length of Stay (day)	1.89	1.28	2.02	2.02	2.02	2.03
Vietnamese (Local)	1.80	1.87	2.03	2.03	2.03	2.04
Foreigner (International)	2.06	1.89	2.03	2.0	2.00	2.02

Source: Thua Thien Hue Statistics Office. 2012. *Statistical Year Book, 2011*. Hue: Statistical Publishing House.

Poverty Profile

In 2013 the poverty rate³ in Hue city (3.1%) was significantly lower than the rate in whole Thua Thien Hue province (8.0%), and lower than the national urban average (3.9%).

In 2013, the poorest urban wards within Hue city, were Huong So and Phu Hau (about 7% of poor households and from 6% to 10% of near poor households). According to Hue's People's Committee,⁴ this is mainly due to the number of poor households living in precarious conditions or living in flood-prone areas that were resettled in these two wards during recent years. In the Citadel area, level of poverty is similar to the average in the whole city (3% to 4%).

Even if the poverty rates are relatively low in Hue city, poverty pockets still exist, especially in Phu Binh, Vy Da, and Kim Long wards. Phu Binh ward, for example, is a poor low-lying suburban area with a population of 10,300 people. It is often hit by floods during the rainy season, when water collects in alley ways and provides breeding grounds for mosquitoes. According to a

Table 5: Population – Baseline Numbers

Item	
Population of Thua Thien province 2012 ^a	1,114,500
Population of Hue city 2012 ^a	344,581
Population of the Citadel ^a	65,015
Population growth rate in Thua Thien Hue province 2008–2011 ^a	0.6%
Population growth rate in Hue city 2008–2011 ^a	1.1%
Poverty rate of Thua Thien Hue province 2013 ^b	8.0%
Poverty rate of Hue city 2013 ^b	3.1%
Thua Thien Hue province urbanization 2012 ^a	48.4%
Hue city urbanization 2012 ^a	100%

^a Thua Thien Hue Statistics Office. 2013. *Statistical Year Book, 2012*. Hue: Statistical Publishing House.

^b DOLISA Hue City 2013

survey carried out in 2011⁵ in Phu Binh ward, about 115 households (783 persons) live in precarious conditions with poor sanitation. There are only 12 public toilets.

³ Based on Government of Viet Nam poverty standards for 2011–2015, in urban areas, households are defined as poor if the average household income is equal to or less than D500,000 (\$23.8)/person/month. Households are defined as “close to poor,” with an income threshold in urban areas from D501,000 (\$23.8) to D650,000 (\$31.0)/person. Poor households are entitled to a range of benefits including lower fees for services and reduced cost health care.

⁴ Meeting with Hue city's People's Committee, Social Department, on 16 January 2014.

⁵ Pham Khac Lieu, D.Eng. Current Status of Water Related Sanitation Conditions in Hue city.

Figure 4: Poverty Rates Among Wards and Communes in Hue City

Source: Department of Labour, Invalids and Social Affairs, Hue City 2012.

Civil Society

Hue city is the home of a strong network of national and international nongovernment organizations (NGOs) mainly involved in climate change adaptation, poverty reduction, health care, and heritage protection. Mass organizations such as the Women's Union, Farmer's Union, Youth's Union, and Fatherland Front continue to dominate the civil society space in Viet Nam and in Hue city.

The Women's Union is a key organization that provides information to households and implements development programs. It is present at all administrative levels (province, city, ward or commune, and village), and implements environmental awareness and credit programs to households—especially poor households.

The Women's Union and NGOs could be key partners to conduct public education programs on environmental protection and to implement low-income credit programs.

Access to Urban Services

Equity with respect to urban services is based on the principles of inclusiveness, accessibility, and affordability. Equity in service delivery includes:

- Equity of access to key services among all citizens;
- Equity among generations;
- Equal access to development benefits, e.g., employment, revenue, social investment; and
- Opportunities to participate equally in the consultation and development process.

Water Supply

Accessibility. A total of 99.6% of the population has access to the piped water supply system.⁶ All customers have water meters. Safe drinking water is available 24 hours a day.

Water quality. HueWACO is implementing a water safety plan⁷ to systematically assess and manage risks, and this has led to a decrease in waterborne diseases. Safe water is available throughout the network, but since the water company cannot control water quality between the water meter and the tap, water is not considered drinkable in some locations. HueWACO was the first company in Viet Nam to install fountains in public locations such as parks.

Feedback from users. Every year, HueWACO sends a questionnaire to customers to get feedback on its water service. HueWACO also has a person dedicated to answering queries and complaints. HueWACO distributes a leaflet to all customers every 6 months with information on water issues in Hue.

The water company pays special attention to raising the awareness of local residents on the need to conserve

⁶ Meeting with HueWACO on 15 January 2014

⁷ The water safety plans are developed by the World Health Organization.

Table 6: Services – Baseline Numbers 2014

Services in Hue City	Coverage (%)
Households connected to the electrical grid	100.0
Households connected to the piped water supply network	99.6
Households connected to the piped sewerage network	30.0
Households with flush toilets	92.9
Households receiving solid waste collection services	95.0
Green space as a percentage of urban area (residential land)	1.7
Green space as a percentage of urban area (nonresidential land)	3.8

Sources: Hue city departments and utilities and Hue Master Plan.

water and avoid water losses. Among the measures undertaken by HueWACO is a 24-hour water leakage hotline open to all city residents.

Tariffs. Water tariffs in Hue are among the lowest in the country. HueWACO established a new block tariff in 2013. Per person charges are: from 1 m³ to 2.5 m³ of monthly consumption: D5,500 (\$0.26)/m³; from 2.5 m³ to 5 m³: D7,200 (\$0.34)/m³; from 5 m³ to 7.5 m³: D8,500 (\$0.40)/m³; more than 7.5 m³: D11,000 (\$0.52)/m³. This new tariff grid aims to reduce water consumption and to favor poor households that generally consume less water.

Until April 2013, HueWACO had specific tariffs for the poor, which got eliminated with the issuance of the new block tariff. HueWACO plans to reissue specific tariffs for poor households only in remote areas but not in Hue city. No willingness-to-pay analysis has been undertaken.

Drainage and Sanitation

Access to wastewater and stormwater drainage services is currently very low in Hue city. Poor communities along

Photo: HueWACO

Public fountains in Hue city.

the river banks experience particularly bad sanitation conditions. The implementation of JICA-financed investments (see Environment, p.4) will improve the situation.

Accessibility. The urban sewerage network covers only 35%—40% of the urbanized area of Hue city and only about 30% of the population. The Citadel has a higher connection rate (56%).

Sanitation conditions. Untreated wastewater is being discharged into water bodies throughout the city. The percentage of households with toilets in the city is 92.9% (versus 78.3% in the province).⁸ In the Citadel area, 99% of households have toilets and 98.5% of those are hygienic toilets (whole city: 95.6%).⁹ Most of the households having toilets also have a septic tank. Septic tank effluents are mainly discharged into the drainage network.

Solid Waste

About 95% of solid waste generated in Hue city is collected. All urban areas are covered.¹⁰

⁸ Pham Khac Lieu. 2011. *Introduction to Urban Sanitation Status in Hue*. Hue: Hue University of Sciences.

⁹ Footnote 8.

¹⁰ Meeting with HEPCO on 15 January 2014.

Feedback from users. HEPCO conducts surveys from time to time to get feedback from customers on sanitation and solid waste management services. Customer feedback comes mainly from districts and communes, when the local authorities conduct public meetings. Local authorities collect complaints and comments and send them on to HEPCO.

Tariffs for waste collection are low—D20,000 (\$0.95) per month for households and D30,000 (\$1.33)/month for businesses.

Housing in the Citadel

The wall surrounding the Citadel was damaged in several places during wars. Many buildings have been built illegally on top of the wall and along the sides. Thua Thien Hue province has approved the restoration of the wall. The People's Committee plans to relocate these households incrementally. The first phase is to relocate informal settlers on 1,500 meters of wall, where 350 households will be affected. Three hundred households will be relocated outside the citadel, while onsite improvements will be carried out for 50 households.

Households will be relocated to two resettlement sites in Phu Hiep (3 kilometers [km]) and Huong So (6 km) wards. No land is available for relocation within the Citadel. The budget for relocation is estimated at D300 billion (about \$15 million).

Public Transport

As the citizens prefer private transportation, the public transport system in Hue is quite weak—only 18 buses are in operation. The number of people riding buses every day is 0.025 passengers/inhabitant.¹¹ The large number of students and tourists may enable the development of the public transport system.

Hue city introduced electric shuttle buses for tourists within the Citadel. Shuttle buses are operated by a private company. Currently the main use of the shuttle is to

Photo: Pierre Arnoux

Electric shuttle buses near the Citadel.

bring passengers from the Nguyen Hoang bus stop to the entrance to the Imperial City. Shuttle buses could be expanded to the whole city.

Heritage

Hue city was the former imperial capital of Viet Nam from 1802 to 1945. Hue Citadel, the Imperial City, and other monuments were collectively recognized by UNESCO in 1993 as a World Cultural Heritage. About 2.5 million tourists (1.5 million domestic and 1 million foreign) came to Hue city in 2013.¹² The Citadel is Hue's main tourist attraction.

The Hue Monuments Conservation Centre manages, preserves, restores, and promotes the Hue Monuments Complex—Hue World Heritage property. The Hue Monuments Conservation Centre manages 232 ha, including 72 ha of buffer zone (Figure 3) comprising the Imperial City, Purple Forbidden City, Royal Canal, Museum of Hue, National University, and Tinh Tam lake. The four wards manage the remaining area.

¹¹ Korea International Cooperation Agency. 2013. *Hue Urban Master Plan*. Hue.

¹² VietnamNet Bridge. 21 January 2013. <http://english.vietnamnet.vn/>

Green Spaces

The city has about 6 square meters (m²) of green space per person. This number is slightly lower than the standard for a city of Class I to II (6 m²—7.5 m²/person).¹³

Social Infrastructure

Health

Hue city is one of the three main health care centers in Viet Nam, along with Ha Noi and Ho Chi Minh City. It has several large general hospitals such as Hue Central Hospital and Hue University Hospital.

Education

Hue city is the educational center for the central region of Viet Nam. Hue University consists of seven colleges and four departments. Currently, the university is establishing a campus town of 120 ha.¹⁴ Hue city has other colleges such as Phu Xuan University and the Hue College of Education.

Because of the proximity of educational and health facilities within the city, about 15% of the urban population is either skilled or educated. This is a favorable condition for promoting the growth of higher value-added businesses.¹⁵

Figure 5: Monument and Site Protective Zoning Map Hue Citadel

The area under the management of the Hue Monuments Conservation Centre is shown in red.

Source: Unesco; World Heritage Committee WHC-13/37.COM/8D Paris, 3 May 2013.

Table 7: Results of Visioning Exercise for Hue City

Environment and Culture	Social Cohesion
Preservation of cultural heritage	Good standards for quality of life
Better disaster management	Good social welfare system
Better adaptation to climate change	Include children, disabled and elderly in city development
Economic Development	Governance
Hue to become the tourism center in the region	Efficient land use
Ecotourism development	Good urban planning and management
Development of tourism and services	A well-governed city
Intelligent transport system	
Highly competitive infrastructure	

Source: Results of the workshop held in Hue city on 22 November 2013.

¹³ Ministry of Construction. 2005. TCXDVN 362. 2005. Standards for green space in urban area Ha Noi: Government of Viet Nam.

¹⁴ Korea International Cooperation Agency. 2013. *The Modification of Hue City's Master Plan 2030 and Vision 2050*. Hue.

¹⁵ Footnote 14.

Hue's Vision for a GrEEEn City

Visioning Workshop

As part of the preparation of the GCAP, a visioning and stakeholder workshop was held in Hue on 22 November 2013. Key stakeholders and decision makers from the provinces and cities attended the workshop. The list of participants of the visioning and stakeholder workshops are presented in Appendixes 1 and 2, respectively.

During the workshop, a visioning exercise and strengths—weaknesses—opportunities—threats (SWOT) analysis were conducted. The results of the visioning exercise are presented in Appendix 3. The status of Hue as Viet Nam's ancient capital, a tourism city, and a cultural center emerged from the visioning exercise.

Based on the SWOT analysis, the main strengths of Hue city are its geographical location, exceptional and well-preserved historical and cultural heritage, strong education and health infrastructure, international airport, and environmental assets (river, green areas).

The main weaknesses are the lack of financial resources, the outdated urban infrastructure (drainage, sanitation, transport), environmental damage (deforestation, water bodies not well-maintained, pollution from substandard sanitation), encroachment on natural heritage and the lack of community awareness for environment and natural disaster (especially flooding).

The main opportunities are the support from various levels of government and from development partners, the development of Hue as a tourist spot based on preservation of cultural heritage, and promotion of Hue as a health care center.

Finally, the main threats are the effects of climate change due to Hue's location in a low-lying area between the

Photo: John Bachmann

Hue aspires to GrEEEn development.

mountains and the sea, the conflict between economic growth and heritage and environment preservation, and the competition with Da Nang city.

The results of the SWOT exercise are presented in Appendix 4.

The Vision

Hue city aspires to become a highly sustainable, world-class tourist destination.

The competitiveness of Hue's economy will derive from the strength of its tourism sector, which in turn is based on historic preservation. Tourism will drive the development of services such as lodging, food and beverage, culture and entertainment, and handicrafts. Moreover, tourism will combine with health care and education to broaden and strengthen the services sector in general. Services, not manufacturing, is the targeted economic base of the future Thua Thien Hue city.

Environmental improvement is key to the development of the tourism sector and to improving the quality of life for Hue's residents. The People's Committee will drive forward the expansion and improvement of urban environmental infrastructure (stormwater, wastewater, solid waste); the rehabilitation and preservation of key environmental assets (riverfront, ponds, and lakes); and the development of environmentally friendly transport services and green districts.

The vision for the future of Hue includes but is not limited to the rehabilitation of the Citadel, Hue's unique selling point. Many of the environmental and tourism-related improvements will focus on the Citadel. New sustainable districts will be developed in other parts of the city in order to expand the urban structure and provide new mixed-use venues for growth of the services sector. Improvements to urban environmental infrastructure will

be undertaken across the urbanized area, not only in the Citadel.

The People's Committees of Thua Thien Hue province and Hue city will implement the following initiatives in service of its vision:

Initiative 1: Improve the urban environment

Initiative 2: Enhance the tourism experience

Initiative 3: Develop sustainable transportation in newly expanded Hue city

Each initiative incorporates economic, environmental, and social development features that are mutually reinforcing. The actions under each initiative are presented in the next section. The cumulative economic impact of the initiatives is discussed in Section 7.

GrEEEn City Action Plan

INITIATIVE 1 Improve the urban environment

INITIATIVE 1 Outcomes

Improved drainage and wastewater management on the north bank, including the Citadel

- Wastewater system improvements reduce pollution load in the Huong river and other surface water bodies
- Natural hazard resilience against floods is strengthened, and the city is better able to cope with flooding because of increased containment capacity through pond management

Better solid waste management for local residents and tourists in the medium and long term

- More environmentally friendly waste disposal

Greater energy-efficiency and smaller carbon footprint

- Improved street lighting at a lower rate of energy consumption

Proposed Actions	
Short Term	Medium and Long Term
Action 1: Develop a wastewater collection and treatment system in the Citadel and surrounding areas	Action 4: Develop a landfill in Huong Binh (including septage treatment and disposal)
Action 2: Improve the drainage system for the four wards in the Citadel	Action 5: Develop energy-efficiency street lighting
Action 3: Rehabilitate ponds and canals	Action 6: Improve city-wide water quality monitoring

To become a truly GrEEEn city, Hue needs basic infrastructure for better wastewater and stormwater management. The new domestic wastewater collection

and treatment system proposed for the north bank will cover the Citadel and its buffer zone. Sewering the north bank will help protect the Citadel in the medium term and also achieve the economies of scale for the operation of the wastewater treatment plant. These improvements will complement the water supply projects included under the ADB-financed project, MFF-0054-VIE.

Stormwater and domestic wastewater management within the Citadel is closely connected with the system of ponds and canals. The rehabilitation and maintenance of these ponds are vital not only from the point of view of cultural heritage preservation, but also to serve as containment areas during the floods. The two biggest ponds—Hoc Hai and Tinh Tam—that have a cumulative area of 11 ha have already been approved for clean up. With the domestic wastewater management system in place, the quality of the ponds will improve, and maintaining these with proper planning and development controls will further contribute to the cultural richness of the Citadel.

With the establishment of the domestic wastewater management system and the rehabilitation of the canals and ponds, it will be necessary to monitor the water bodies to determine whether the system is working effectively. Water quality monitoring stations are required in selected ponds and canals to ensure that untreated domestic wastewater is not discharged into the ponds or through the canals into the river. Septage management will be improved, and septage treatment facilities will be introduced at the landfill.

Top Left: Many ponds are overgrown

Bottom Left: Water abstraction for quality monitoring

Middle: Continuous water quality monitoring

Right: The network of canals in the Citadel

ACTION 1 Develop a wastewater collection and treatment system in the Citadel and surrounding areas

This action aims to collect and treat all the domestic wastewater in and around the Citadel. This will require designing the tertiary, secondary, and primary collection network and building a new sewage treatment plant in a suitable location. It will be important to integrate the existing household sewage management arrangements so that significant disturbances are not caused during construction in these densely populated and culturally sensitive areas. JICA is carrying out a feasibility study to estimate the cost of this activity. Based on the wastewater collection and treatment system being commissioned in the south of the Huong river, it can be assumed that the cost will be about \$250 million—\$300 million.

The development of the domestic wastewater collection system should be done in a phased manner. The design should also maximize benefits and minimize costs for the residents and the tourism industry. Many households

have buried septic collection tanks that are used to separate solids from the liquid effluents. Instead of disbanding these decentralized collection tanks, it will be appropriate to take only the liquid portion through a pipe for downstream treatment, and the system of collecting septage is continued. Only the liquid portion is then pumped through a pipe to downstream treatment. A mix of gravity and pumped flow should be used to take the domestic wastewater to the treatment plant, and the location of the treatment plant—downstream from the city center—should be such that the gravity flow is maximized.

Agency	Estimated Cost
Hue Environmental Protection Company	\$300,000,000

Urban Watershed Management Plan: City of Portland, Oregon

The Portland, Oregon Watershed Plan in the United States seeks to achieve and maintain healthy rivers that carve through the center of the city while enhancing city infrastructure. The plan comprehensively integrated the activities of many city bureaus, maximized the use of limited resources by looking for solutions that met multiple objectives, and focused on addressing environmental problems at their source.

Within a few years of implementation, the city has managed 890 million gallons of stormwater through natural means, letting it filter through plants and soak into the ground to recharge water supplies. The comprehensive plan includes stormwater management, revegetation, restoration of streams, stormwater facility operations, education, and stewardship and protection policies for water resources.

Planning and scientific analysis throughout development of the plan has led to capital project investments that integrate natural or “green” approaches with “grey” or traditional approaches. Green approaches manage stormwater at the source—reducing degradation of waterways—and involve the community and local partners. Lessons learned from the planning process include:

- Adopting a multidisciplinary approach. This has been essential to the plan’s success, involving participation and collaboration of engineers, planners, department heads and watershed managers from across the city government.
- Starting small. Beginning with and monitoring pilot project practices and modifying the designs to improve function and effectiveness has enabled larger projects to be implemented more successfully.

Sources: City of Portland, Bureau of Environmental Services; Water Environment Research Foundation.

ACTION 2 Improve the drainage system for the four wards in the Citadel

Where feasible, domestic wastewater will be separated from stormwater. The stormwater drainage system will also have to be improved in the four wards of the Citadel. This will involve clearing and lining the drains. Particular streets have been identified, including Le Thanh Tong, Nguyen Bieu, Dang Dung, Nguyen Chi Dieu, Han Thuyen,

Dinh Cong Trang, Mang Ca, Luong Ngoc Quyen, Ton That Thiep and Ta Quang Buu.

Agency	Estimated Cost
Hue Environmental Protection Company	\$9,500,000

ACTION 3 Rehabilitate ponds and canals

Having received a mix of stormwater and domestic wastewater for several years, the ponds and canals of the Citadel must be dredged and rehabilitated. One of the 42 ponds has been rehabilitated. The An Hoa river canal and five lakes (Xa Tac, Tan Mieu, Vo Sanh, Phuong Ho and Ta Bao Ho) have been identified. A total of 3.0 km

of the An Hoa river and a surface area of about 8 ha of ponds and lakes have been identified for rehabilitation.

Agency	Estimated Cost
Hue Environmental Protection Company	\$22,200,000

Urban Lake Rehabilitation in India's Garden City: From Sewage to Stewardship

The Kaikondarahalli lake in Bangalore, India, is a unique example of how a network of concerned citizens can restore an urban lake. Called the Garden City of India, Bangalore has experienced rapid growth in recent decades due to investments in the information technology industry. This growth has put enormous pressure on the urban environment. Lakes connected by channels across the city have been severely degraded by sewage inflows and other causes, with negative impacts on flood control, water livelihood use, and groundwater recharge. The Kaikondarahalli lake is one example. Covering about 20 hectares, the lake was part of a traditional tank system that was developed over centuries. As the city grew, it became increasingly attractive to land developers. At the same time, the lake fell to neglect because farmers were no longer using it. Encroachment, growth of unhealthy hyacinths, and sewage discharge became the norm. Under the Mahadevpura Environment Protection and Rejuvenation Trust (MAPSAP), a group of nongovernment organizations from India; civil society groups; and local communities from diverse socioeconomic backgrounds came together and decided to work with the government to draw up plans to restore it into a living water body. MAPSAP oversees maintenance of the lake and the construction of public amenities and other works. This urban environmental stewardship body functions as a platform for action and also acts as a lake watchdog, which is being replicated across other lakes in the city. More citizens are questioning the formal, established visions for development and are looking for a genuinely sustainable urbanization for Bangalore.

Source: Stockholm Resilience Centre, 2014.

Photo: Swaminathan

ACTION 4 Develop a landfill in Huong Binh (including septage treatment and disposal)

The new landfill will include perimeter fencing, polyethylene lining, leachate treatment, and onsite composting and recycling facilities. Preliminary studies have yet to begin, but based on the existing landfill located in the southern part of the city, the estimated cost is about \$10 million.

Agency	Estimated Cost
Hue Environmental Protection Company	\$10,000,000

ACTION 5 Develop energy-efficiency street lighting

To promote energy savings in line with the national plans and contribute toward climate change mitigation, energy-efficient lighting will be installed on Hue city streets. Various technology options, including solar PV, will be explored. Based on the pilot experience, switching to LED technology appears to be the most feasible. The city has about 12,000 street lights, about 70% of which will be replaced.

Agency	Estimated Cost
Hue City Department of Industry and Trade	\$2,500,000

ACTION 6 Improve citywide water quality monitoring

With the domestic wastewater collection and treatment plant currently being built in the southern part of the city and a similar system being planned for the northern part, a water quality monitoring network across the city will be required. A water quality monitoring station downstream of the Huong river has recently been established. Based

on the costs incurred, an estimate of \$1 million is included for a citywide network of monitoring stations in the city.

Agency	Estimated Cost
Thua Thien Hue Department of Natural Resources and Environment	\$1,000,000

ACTION 7 Introduce and promote low-impact development standards

Low-impact development (LID) refers to an environmentally sensitive approach to managing stormwater run-off. LID aims to absorb as much stormwater locally into the ground as possible. This reduces run-off, which picks up contaminants on the ground and deposits them in surface water bodies. LID emphasizes conservation and use of on-site natural features to absorb water into the ground. The idea is to increase the quantity and capacity of surface materials and treatments to absorb rainwater. Typically, LID

features include bioswales, pervious paving, unpaved public, and natural open space areas.

This action includes the preparation of the LID standards, incorporation of the standards into the development code, and promotion of the standards to the developer community and the public.

Agency	Estimated Cost
Hue City Department of Construction	\$150,000

The “Street Stewards” of Portland, Oregon

The city of Portland in the United States has implemented numerous low-impact development programs including green streets, community and youth programs and the on-site stormwater management program. More than 169 green street facilities have been installed to collect stormwater runoff and provide pedestrian, bicycle, and automobile safety.

The Community Watershed Stewardship Program and the Youth Conservation Crew program provide work opportunities for young people by employing them to help the city plant trees and restore river shorelines for reducing erosion and promoting wildlife habitat.

The Portland Clean River Rewards provide a discount to sewer rate payers who disconnect their downspouts, reduce impervious surfaces and manage stormwater on-site. Nearly 35,000 residents participate in the program, managing more than 110 million square feet of impervious area.

Source: City of Portland, Bureau of Environmental Services, <http://www.portlandoregon.gov/bes/52501>

Enablers for Initiative 1

With these various activities planned under this initiative, the urban environment in the vicinity of the Citadel will be strengthened. A comprehensive environmental awareness program will be launched to sustain these activities. Only with cooperation and support from the citizenry will it be possible to sustain higher-quality urban environmental management. A number of activities have been undertaken, such as programs being run by the Hue University. The awareness-building initiative will expand on these existing activities.

To increase the affordability of environmental infrastructure improvements to local residents, a sanitation credit scheme will be managed by Hue Women's Union. The union will inform households on the loan conditions for the construction of a toilet, a septic tank, or latrine, and connections to the piped

wastewater network. Poor and low-income households will have access to the credit scheme. Start-up capital for the scheme, amounting to about \$3 million, will be administered as a revolving fund. This includes the loan for the capital assessment, operation and management, and costs for environmental awareness. The conditions for loan and repayment and the eligibility criteria will be identified. Associated with this credit scheme will be a community awareness program.

In addition to civil society participation, the GCAP opens the possibility of significant participation from private sector infrastructure providers. The possibility of delivering the landfill at Huong Binh as a build–operate–transfer facility should be explored through a feasibility study. The new energy-efficient street lighting could be installed by an energy services company under contract with Hue city. The savings in electricity costs could be shared between both parties under an agreed formula.

INITIATIVE 2 Enhance the tourism experience

INITIATIVE 2 Outcomes

Hue will be known as a major Asian city of culture

- Heritage is preserved
- Tourism experience for visitors is richer and more diverse
- Mobility within the city is enhanced
- Visitors will stay longer
- Nighttime economy is strengthened

The Citadel (outside the Imperial City) will be known as a cultural tourism destination

- Mobility within the Citadel is developed (bike lanes, boats, shuttle)
- Visitors expand their visit outside the imperial palace
- Water-based cultural tourism is enhanced (rehabilitation of ponds and canal; canal used for transport of tourists)

Although Hue is one of Viet Nam's top national and international tourist destinations, the tourism experience of tourist activities, including natural and cultural tourism crafts market in Thuy Xuan is mainly limited to the Imperial Palace and the royal tombs. The tourism offering outside of the complex of monuments is fairly limited. There are few evening activities, and not many cultural venues where tourists can go for a deeper understanding of the Nguyen dynasty or of the history and culture of Viet Nam. For these reasons the average visit to Hue is fairly short—only 2 days.¹⁶

This initiative aims to broaden and deepen the tourism experience in order to attract more tourists and have them spend more time in Hue, increasing tourism

¹⁶ Source Korea International Cooperation Agency. 2014. *Hue City's Master Plan*. Hue.

revenues and spin-off activities. The range of cultural and natural tourism activities will be expanded. More nighttime activities—including night markets and cultural shows—will be introduced. A new crafts market will be developed on a site near the Citadel. Additional strategic sites within the Citadel outside the Imperial City will be developed to diversity the experience of visiting the Citadel, Hue’s unique selling point.

Proposed Actions

Short-Term:

Action 1: Expand the range of tourist activities, including natural and cultural tourism

Action 2: Identify strategic areas of the Citadel outside the palace that can be redeveloped to enhance the tourism experience

Action 3: Develop a new crafts market in Thuy Xuan ward

Medium and Long-Term:

Action 4: Expand the “Hue by night” offering: night markets, cultural shows, etc.

Action 5: Develop more nonmotorized transport and public transport options in the Citadel

What is Ecotourism?

Ecotourism involves travel to relatively undisturbed natural areas with the specific objective of studying, admiring, and enjoying the natural and cultural features in those areas. It is distinguished from mass or resort tourism by its lower impact on the environment, lower infrastructure requirements, and its role in educating tourists about the natural environment and local culture.

Source: Chesworth, N. 1995. Ecotourism seminar paper delivered in the Institute of Environmental Studies and Management. UPLB. College, Laguna

photo: John Bachmann

ACTION 1 Expand the range of tourist activities, including natural and cultural tourism

Hue will expand the area visited by tourists and spread the benefits to a larger cross-section of the population. Selected cultural and historical assets that are now visited infrequently will be improved and incorporated into existing tourist circuits. Additional tourism in those areas will create new economic opportunities for local residents and businesses, which can provide services to tourists. The improvements to assets such as temples, heritage buildings, and historic sites and will be planned and programmed in coordination with the Hue Monument Conservation Center and other tourism development authorities.

A market study will define the additional tourism activities. The study will use primary demand data to determine the preferences of the target tourist groups. The preferences will then be built into the program for expansion of tourist activities.

The study should address the following:

- Demand from the target market (types of activities, etc.)
- Potential for expansion of current cultural events of international standards and for new cultural events (new expositions, exhibitions, festivals, film festivals, etc.)
- Skilled workforce to deliver high quality services

Agencies

Estimated Cost

Department of Planning and Investment;
Department of Culture, Sports and Tourism
of Thua Thien Hue Province; Department
of Culture of Hue City; Hue Monument
Conservation Center

\$300,000

ACTION 2 Identify strategic areas of the Citadel outside the palace that can be redeveloped to enhance the tourism experience

The Citadel, within the walls, occupies 520 ha (about 2.5 x 2.5 kilometers) and is home to 60,000 residents. The Citadel is a preserved area with its own architecture (garden houses) and landscape (ponds, canals). Few tourists visit the Citadel outside the palace area. The Citadel has an extensive canal–river system that facilitates tourism development. Hue will identify strategic areas of the Citadel that can be redeveloped to enhance the tourism experience. This could include main axes between assets, the areas immediately adjacent to the main assets, and public open spaces. Local area plans will be prepared and implemented for these key parts of the public realm of the Citadel

Local plans for strategic areas in the Citadel will include:

- Improve pedestrian facilities along key tourism axes and connectors;

- Identify streets within the Citadel with potential for tourism activities, commercial establishments and services, introducing the cultures and assets of Hue city;
- Develop street furniture and street lighting specific to the Citadel;
- Mobility improvements (Action 5).

Agencies	Estimated Cost
Department of Planning and Investment, Hue Planning Institute, Hue University, Hue Monument Conservation Centre, Department of Construction, Department of Transport	\$100,000,000

Proposed Conceptual Design for Alternative Transportation in the Citadel

Source: International workshop of Hue University and Chiang Mai University.
http://www.arc.cmu.ac.th/master_program/doc/Work02_Citadel%20Canal.pdf

ACTION 3 Develop a new crafts market in Thuy Xuan ward

Hue will develop an interactive crafts market in Thuy Xuan ward.¹⁷ Tourists and residents will have the opportunity to see artisans at work and to try their hand at some of Hue's traditional crafts techniques. This will include in particular bronze casting, a traditional vocation that has been practiced in Hue city (Phuong Duc Ward and Thuy Xuan Commune) for 2 centuries. Classes will be offered. Existing cottage industries that are not unduly polluting will be allowed to remain in their current location; the new market will be sized to take into account current and future demand on the part of artisans and tourists alike.

In Viet Nam, craft villages are known to generate pollution, mainly as a result of wastewater discharge. The market will be connected to an adequate wastewater treatment facility (either dedicated or serving the surrounding area, depending on the nature of the waste).

Based on the approved construction plan, an infrastructure plan will be prepared for the craft village. The project will focus on sanitation.

The infrastructure plan will include:

- Projected anticipated wastewater pollution load;
- Evaluation of the need for pretreatment of wastewater before release in the city's sewerage system for heavy-polluting craft activities (i.e., bronze casting);
- Environmental monitoring procedures for wastewater (sampling etc.);
- Design of sanitation network within the whole Hue's sanitation network; and
- Design and cost estimates.

Agencies	Estimated Cost
Department of Industry and Trade; Department of Culture, Sports and Tourism of Thua Thien Hue Province; Department of Culture of Hue City; Hue Environmental Protection Corporation	\$5,000,000

World Heritage in a New Light—the City of Ravensburg

A stroll after dark in the historic city center of Ravensburg, Germany, raises a question. Do modern light-emitting diodes (LED) streetlights fit in harmoniously in the narrow medieval lanes of a World Heritage city? The light comes from quite a variety of lamps. Some alleys are bathed in a yellowish, almost otherworldly light. Then, just a few steps away, narrowly-focused light cones create a pattern of light and darkness on the cobblestones. Illuminating two of the narrow lanes are cylinders with many tiny points of light—lamps with LED. The warm light cast by LEDs on the city's historic facades makes the city appear every bit as picturesque by night as by day. The alleys are also more brightly lit, with hardly any dark corners. That's because many of the LEDs create long light cones along the narrow streets, while a few also focus light downward. The LEDs that light the opposite walls are adjusted to use only 30% of the electricity required for lighting sidewalks.

LEDs stand out due to their high energy efficiency and their light's excellent color reproduction. They can do much more than conventional lighting. LEDs are immediately bright when turned on and can be continuously dimmed down.

Source: SIEMENS (Green Cities) World Heritage in a New Light, http://www.siemens.com/innovation/apps/pof_microsite/_pof-spring-2010/_html_en/led-streetlights.html

¹⁷ On 26 June 2014, Thua Thien Provincial People's Committee issued Decision No. 1279/QĐ-ND and No. 1280/QĐ-ND to approve the detailed construction plan for a traditional craft village in Thuy Xuan ward in Hue city.

ACTION 4 Expand the “Hue by night” offering: night markets, cultural shows, etc.

By night, Hue offers few activities to visitors. A night market along the Huong River—located by the road used for sightseeing and relaxation—has been contested by residents as it disturbed the sightseeing activities and is driving tourists away from commercial streets. This requires that a new location for the night market be identified. In Asia, night markets tend to rank high among local tourist attractions. For international tourists, experiencing local culture and customs is the main motive for visiting night markets.

The Hue Monument Center has started a program called the Royal Palace by Night, which focuses on performing royal arts such as the Vietnamese Court Music, Royal Dance, Hue Royal Play, and the Hue Chamber Music. The program is held every 2 years, in coordination with the Hue Festival. These types of activities should occur more often at a smaller scale.

Street lighting in the city center, the Citadel, other heritage sites, and along the Huong River needs to be improved by using energy-efficient lighting (LED lamps) that reduce energy usage, reduce maintenance and operational costs, and improve system reliability. Three agencies are responsible for urban lighting in Hue city: Hue Monument Convention Center manages the lighting of historical sites; the Urban Park Corporation manages lighting in Huong River Park; and HEPCO manages lighting on streets and bridges.

This initiative can be further formulated to include the following features:

Identify a location for a new night market in Hue that

- is preferably next to the existing commercial and tourist lodging areas of the city on the right bank of the Huong River;

- is accessible to hotels and commercial activities, has positive impact on existing night activities, (restaurants, bar etc.), and few impacts on traffic; and
- has a strategy that reflects Hue history, society, and features.

Expand cultural activities at night that

- explores the potential for more frequent cultural activities at night at the Imperial Palace and other heritage locations;
- expands and diversifies boat tours on the Huong river (i.e., connected to the Citadel and other places); and
- develops shuttle tour to the Citadel and other locations where events will take place.

Implement an energy-efficient lighting program for Hue City center and the Citadel area that

- will install lighting facilities in isolated areas and at parks such as those near Huong River;
- renovate and improve night lighting fixtures based on specific characteristics of the area (commercial activities, heritage, parks, Huong riverfront etc.); and
- promote the use of high-efficient and electricity-saving light sources such as LED.

Agencies	Estimated Cost
Department of Planning and Investment, Hue Monument Conservation Center, Hue Environmental Protection Corporation, Urban Park Corporation	\$3,000,000

ACTION 5 Develop more nonmotorized transport and public transport options in the Citadel

Mobility improvements will increase access to existing and new tourism assets. Biking will be promoted through a bike-sharing program, bike lanes, and bicycle parking near tourism assets. Pedestrian facilities will be improved along key tourism axes and connectors. A shuttle bus service will also improve access to the tourist sites. Water transport along the Huong River and selected canals and ponds will also be introduced. The mobility improvements will be planned to promote a shift from motorized to nonmotorized transit in the Citadel for lower greenhouse gas emissions.

The improvements to the banks of ponds and canals, discussed under Initiative 1, will also enhance the whole tourism experience. Canals and waterways can be used to transport tourists.

The mobility improvements related to tourism could include:

- exploring the potential of a bike-sharing program, bike lanes, and bicycle parking near tourism assets;
- exploring potential for shuttle services and identifying shuttle tours;
- using waterways (Huong River and canals) to develop new cultural tours; and
- forming partnerships among the public and private sectors and other stakeholders.

The Urban Mobility Master Plan for Citadel Area and Vicinity, now under preparation by the Korea Transport Institute with ADB financing, will refine the technical proposals for mobility improvements and estimate the implementation cost.

Agencies	Estimated Cost
Department of Transportation; Department of Culture, Sports and Tourism; Department of Planning and Investment	To be determined

Enablers for Initiative 2

The Citadel is the unique selling point of Hue City and any development in the Citadel should be carefully evaluated and monitored. A protection and development committee for the Citadel is necessary to bring together the major stakeholders and to ensure the development in the Citadel will not negatively affect the community and will preserve its unique environment and heritage. The committee can guide the scoping, review, and finalization of the strategic areas to be redeveloped; the rehabilitation of ponds and canals; the planning and development

around the ponds and canals; and the alternative transport network development.

The regulatory framework for the Citadel area should be adjusted. Once the strategic areas to be redeveloped for the Citadel—including development around the ponds and canals—are identified, Thua Thien Hue Provincial People's Committee should review and revise as required the existing Hue master plan to integrate these new development areas.

INITIATIVE 3 Develop sustainable transportation in newly expanded Hue City

INITIATIVE 3 Outcomes

Improved traffic circulation

- Less congestion in the city center
- Improved access to tourism sites

Lower carbon footprint

- A larger share of trips taken on public transport
- A larger share of trips taken on nonmotorized transport

Greater livability

- More public open spaces
- Higher environmental quality

Hue city is in the process of expanding beyond its traditional urban centers. A new government and mixed-use center is under development in An Van Duong, southeast of the current city center. Another district is

planned to the west of the Citadel. These new districts are necessary to expand the urban structure and provide new mixed-use venues for growth of the services sector. The province and the city intend to develop the new district using green city principles, including sustainable transportation.

Proposed Actions

Short Term:

Action 1: Promote bicycle use in the city center through bike lanes and bike sharing

Action 2: Build new roads to strengthen connections to tourist attractions and to open up new green districts

Medium and Long Term:

Action 3: Develop peripheral parking facilities linked to public transport networks

Action 4: Develop new tram line on existing railway alignment through the city center

ACTION 1 Develop peripheral parking facilities linked to public transport networks

To limit truck and bus traffic in the city center, the Department of Transportation plans to develop a set of truck and bus parking facilities at key locations at the urban periphery. Parking lots for trucks will be located next to wholesale markets at the urban fringe. Bus stations with sufficient parking facilities will be located outside the city center, including in new districts (Action 2); passengers will disembark at these stations and transfer to other means of transport, including public

transport, to reach their final destination. Five parking lots covering 2.7 hectares have been identified. No feasibility analysis has been prepared to date.

Agencies

Thua Thien Hue Department of Transportation, Department of Planning and Investment

Estimated Cost

\$400,100,000

ACTION 2 Build new roads to strengthen connections to tourist attractions and to open up new green districts

The roads will connect the city center to the new green districts, including An Van Duong. New bus services will be opened along the new roads. The development of the green districts will emphasize walkability, human-scale urban design, nonmotorized and public transport, and high standards for energy efficiency and water conservation in building design. New open spaces will be developed in the green districts. The districts will set a

high standard for livability and sustainability that can be emulated by other districts and other cities in Viet Nam in the future.

Agencies	Estimated Cost
Thua Thien Hue Department of Transportation, Department of Planning and Investment	\$70,000,000

Photo: TEDxBogota

Building a city on the principles of social equity and quality of life in Bogota, Colombia

The city developed a public transport system that included bike lanes and pedestrian-friendly sidewalks. Existing public parks were improved and new ones developed, including in the poorer areas of the city. Efforts were made to connect the slums to the inner city. In short, Bogota developed infrastructure that benefitted all its inhabitants, especially the poor, resulting in the creation of one of the most competitive and livable cities in Latin America.

Source: United Nations Economic and Social Commission for Asia and the Pacific, United Nations Economic Commission for Latin America and the Caribbean, United Nations Human Settlements Programme, Urban Design Lab. 2011. *Are we building competitive and liveable cities? Guidelines for developing ecoefficient and socially inclusive infrastructure*. Bangkok: United Nations.

ACTION 3 Promote bicycle use in the city center through bike lanes and bike sharing

Bike lanes will be developed along selected streets in the city center. Priority streets for bike lanes include: connector streets among the commercial and hotel areas and the tourist sites, connector streets from the current city center to the new sustainable districts (Action 2), and streets along surface water bodies such as the Huong river and the lakes and ponds.

Agency	Estimated Cost
Thua Thien Hue Department of Transportation	To be determined

ACTION 4 Develop new tram line on existing railway alignment through the city center

The Department of Transportation has proposed to develop a new tram on an existing railway line through the city center. The tram project is included in the Hue City Transportation Master Plan, now being reviewed by the Provincial People's Committee.

Agency	Estimated Cost
Thua Thien Hue Department of Transportation, Department of Planning and Investment	To be determined

Enablers for Initiative 3

Public-private partnerships will be used to develop the green districts. The government will consult private real estate developers during the process of setting the green building standards, which will include higher than normal standards for energy efficiency and water conservation. Joint development projects, in which the public sector provides off-site infrastructure in return for the construction of green amenities, will be negotiated between the Hue City People's Committee and real estate developers on specific investment projects.

Public transport companies will also be consulted during the planning phase on the expansion of bus service to the green districts and the development of new tram service in the city center.

The city will consider using subsidies to ensure the financial viability of any public transport services that are to be provided by the private sector.

The Role of Partnerships in GCAP Implementation

Partnerships among Stakeholders

Hue city will systematically involve civil society, the private sector, Thua Thien Hue province, and other stakeholders in the implementation of the GCAP by inviting them to participate in the GCAP Implementation committee. This will allow participation of all stakeholders where they can contribute to the refinement and implementation of specific GCAP actions.

A separate management committee will be dedicated to the Citadel: the Citadel Development and Protection Committee is central to the implementation of both Initiative 1 (environmental improvement) and Initiative 2 (tourism experience enhancement).

Hue city will also involve local communities in the management of disaster risk and climate change risk. Several nongovernment organizations (NGOs) in Hue implement programs to reduce vulnerability to natural disasters and climate change (e.g., Development Workshop France, Centre d'Étude et de Coopération Internationale (CECI), Institute for Social and Environment Transition (ISET). Hue has adopted the community-based disaster risk management model. This model, as practiced by the Canadian NGO CECI in Hue and other cities,¹⁸ engages local officials and community members in a process of analyzing their vulnerability and opportunities for development based on information about hazards, climate patterns, the environment, livelihood options, and social and economic

infrastructure. This model has proven successful in Hue and will be strengthened. This is one key to building resilience to climate change. The results of the collaboration are used in planning for disaster response and disaster-resistant development plans and projects.

Urban Management Partnership

ADB will help establish an urban management partnership, a local partnership platform for implementing one of the key initiatives of the GCAP. Some priority actions under Initiatives 1 and 2 focus on further improving one of Hue's major tourism attractions, the Citadel and its Imperial City. The implementation of the actions under both initiatives needs to be well-coordinated among the stakeholders involved.

The GCAP calls for the establishment of a Citadel Development and Protection Committee (CDCP) that will serve as a platform for learning, engaging, and collaborating among stakeholders. Chaired by the Hue Peoples' Committee, the committee should comprise representatives from residents living in the four wards within the Citadel area; local businesses and other organizations providing tourism; cultural heritage and related services; local university providing local capabilities in urban environmental planning; and government agencies involved in the planning, rehabilitation, and heritage preservation of the Citadel and its surrounding land and water bodies.

¹⁸ International Environment and Disaster Management, Graduate School of Global Environment Studies, Kyoto University. 2005. *Enhancing Human Security, Environment and Disaster Management: Focus on Central Viet Nam*. Kyoto. http://www.iedm.ges.kyoto-u.ac.jp/images/res-jpn/research_ADB_PEF_project.pdf

Through frequent consultations and joint initiatives, CDPC should ensure improved coordination, participatory planning, transparency, and coordination among government agencies responsible for enhancing the tourism experience. Development should benefit the largest possible number of residents in the Citadel. Detailed plans by private developers, if any, will be properly disclosed to citizens concerned.

The preparation of Citadel redevelopment plans is the first and possibly most challenging GCAP action that could be undertaken through the CDPC. The local area plans would provide stakeholders with a collective vision of how to further enhance the tourism experience within the Citadel.

The Hue Peoples' Committee recognizes that urban environmental planning capabilities in Hue are weak at best. The local government has limited experience with strategic planning, and no experience with preparing master plans in a participatory manner. As is common in Viet Nam, various agencies are involved in the preparation of local development plans and these agencies do not necessarily coordinate their efforts, resulting in overlap in effort and sometimes contradictory development guidance for a particular area.

One reason cited for the general lack of appropriate planning skills is that practicing planners do not have

the academic education and training to solve current urban environmental issues. The Hue University College of Sciences (HUCS) is the main provider of higher education in Thua Thien Hue province. The university has agreed to create new bachelors and masters degree programs on environmental management. While this will undoubtedly result in improved planning skills among future government officials, the need to apply proper urban environmental planning principles is more immediate. HUCS could team up with a preferably Vietnamese institute with advanced urban environmental planning programs.

From 2005 to 2009, the European Union funded the Urban Environmental Planning Program in Viet Nam (UEPP-VN), aimed to build professional planners' capacities in urban planning more appropriate to solving local environmental problems and needs. UEPP-VN helped the Ho Chi Minh City University of Architecture (HCMUARC) with updating their graduate and undergraduate urban planning curricula and strengthened the capacity of the university to implement these curricula. The new curricula have been applied since 2009, and HCMUARC could therefore be considered an appropriate mentor for HUCS in developing a similar curriculum for Hue.

Institutional Arrangements for Implementation

Implementation Strategy

Establishment of an Executive GCAP Implementation Committee

The Thua Thien Hue People's Committee will establish a supra-departmental executive GCAP implementation committee that will:

- Facilitate inputs of all major stakeholders in GCAP implementation;
- Ensure coordination among the municipal and provincial departments involved in implementing all of the actions under the GCAP;
- Ensure that decision making for individual investment projects is consistent with the approach and the objectives of the GCAP;
- Monitor and evaluate progress on implementation of the GCAP; and
- Report the status of GCAP implementation to stakeholders.

Chaired by the vice chairperson of the Thua Thien Hue People's Committee, the supra committee will comprise vice directors of the following key provincial departments and representatives of Hue City People's Committee:

- Department of Planning and Investment (DPI)
- Department of Natural Resources and Environment (DONRE)
- Department of Construction (DOC)
- Department of Transportation (DOT)
- Hue Water Company (HueWACO)
- Hue Environmental Protection Corporation
- Department of Finance

Figure 6: Institutional Arrangements for GCAP Implementation

DOC = Department of Construction, DOIT = Department of Trade and Industry, DONRE = Department of Natural Resources and Environment, DPI = Department of Planning and Investment, GCAP = GrEEn City Action Plan.

Source: Asian Development Bank.

- Department of Industry and Trade
- Hue City People's Committee representatives
- Women's Union and other mass organizations

Establishment of a Project Delivery Unit

A project delivery unit will be established to identify, prepare, and implement GCAP actions. The unit shall also comprise experts from relevant departments, including DONRE, DOC, DPI, DOT. Acting as the technical arm of and reporting to the GCAP implementation committee, the unit will:

- Prepare a detailed road map for implementation of the GCAP, including breaking each action into a number of subactions, with parties responsible and timelines;
- Oversee the preparation of capital investment projects in the GCAP, including preparing scopes of work, monitoring consultant studies and designs, and assigning projects to relevant departments for supervision of construction;
- Ensure adequate analysis of environmental and social impacts of GCAP actions; and
- Oversee the implementation of noncapital actions in the GCAP, including preparation of scopes of work and monitoring consultant studies.

Policy Reform

The policy framework for Thua Thien province will be improved to facilitate the smooth implementation of the GCAP. The Hue People's Committee will prepare and implement the following new and revised policies.

Project identification and prioritization. A new methodology will be developed for rapid and effective identification of new projects. Short project briefs will define project objectives, preferred technical option, cost, financing, economic and social impacts, environmental impacts, and implementation arrangements. The methodology will also define a process and criteria by which projects will be evaluated and prioritized by the project delivery unit.

Project feasibility before project design. The mandatory project cycle for public investment projects will be revised to carry out project feasibility analysis before concept design. This way development programs specifying land area and built area will be defined based on an assessment of the demand before designs are prepared resulting in an increased economic efficiency of public investments.

Infrastructure finance. To access more financing for implementation of green infrastructure projects, the policy will define a broader range of financial instruments and a methodology for matching individual projects to different instruments. Feasible forms of private sector

participation will be identified by type of project. A long list of sources of finance to be considered with a description of the utility, terms, conditions, and advantages of each will be drawn up.

Stakeholder engagement. The process and method for engaging stakeholders in the design and implementation of capital and noncapital GCAP projects will be defined by the project team in collaboration with the government. Minimum levels and types of stakeholder participation will be defined for the preparation and implementation of different types of projects. Mechanisms for stakeholder engagement such as surveys, focus groups, and community scorecards will be drawn up and made available to local government staff.

Capacity Building Needs of Selected Departments

Department of Planning and Investment

To fulfill its roles in identifying strategic projects and mobilizing financing, the Department of Planning and Investment will require capacity building in the following areas:

- Project prioritization, which depends on effective collaboration with other departments. The method will require maintaining the links between the overall development strategy and the impacts of individual projects. Investment projects that do not support the overarching strategy will be ranked lower priority or discarded.
- Public-private partnership execution and the deployment of nonconventional financing strategies.

Department of Construction

The Department of Construction needs greater technical capacity to respond adequately to the challenges posed by natural hazards and environmental degradation. Construction plans, standards, and design guidelines

issued by the department in particular will take into account the evolving risk and climate profiles of Thua Thien Hue province. The following areas will in particular be targeted by capacity building efforts under the GCAP:

- Risk-sensitive urban planning and design,
- Resilient urban construction,
- Stormwater management, and
- Preparation and construction of environmental facilities such as water and wastewater treatment plants.

Department of Natural Resources and Environment

DONRE will be strengthened in the field of integrated water planning by catchment area. This skill is part of the conceptual framework of the GCAP. DONRE will develop new expertise in simultaneously monitoring and managing the broad range of factors that contribute to

surface water quality, including stormwater, land use, land development techniques, and wastewater.

As the main agency responsible for managing and protecting the province's environment, DONRE will also need to significantly develop its capabilities in monitoring and evaluating evolving environmental and climate conditions. This will necessitate investments in the development of relevant technical expertise, such as the use of Key performance indicators, analytical techniques, and advanced equipment to collect information. Land use plans devised by the department will in turn need to be linked to evolving risks profiles. DONRE staff will be trained in:

- Integrated catchment area planning,
- Low-impact development methods and techniques,
- Monitoring of natural hazard risks,
- Risk-sensitive land use planning, and
- Stormwater management.

Cumulative Benefits and Economic Justification

The action plan summary identifies the main benefits that each action in the GCAP is anticipated to generate. Feasibility studies to be conducted as part of GCAP implementation can quantify these benefits and weigh them against the costs. More important than the individual benefits produced by individual actions, however, are the cumulative benefits that result when multiple complementary actions—including capital improvements, regulatory changes, and institutional changes—are implemented in the same spatial and time frame. Each initiative generates a range of complementary environmental, economic, and equity benefits, as indicated by the colored dots.

Figure 10 illustrates how the multiple actions in the Hue GCAP will drive sustainable development of the Citadel, resulting in a cleaner environment, amenities for citizens, tourism investment and jobs, and increased value of real property. Each of the four actions in the blue ovals are worthwhile in their own right; their benefits will in all likelihood outweigh their costs. These are all standard actions commonly found in development programs. But this diverse set of actions, from infrastructure improvements, to lakeshore planning, to development control, will all be brought to bear on the same asset, the same district of the city. The cumulative effect of these actions on Citadel will be greater than the sum of the benefits from each of the individual actions, were they to be implemented separately.

In addition to greater economic return, this integrated approach will also enhance the livability of Hue City for residents and visitors alike. People will be living in a cleaner, more pedestrian-friendly environment with

Figure 7: Synergistic Development of the Citadel: Environmental Improvements Drive Economic Growth

Source: Asian Development Bank.

greater choices for recreational and cultural activities. Their exposure to pollution and waterborne diseases will be reduced, and their economic opportunities will broaden. In this way the GrEEn Cities approach results in a place of higher value that improves the quality of life for those that experience it.

The box (p. 38) presents an international example of how the rehabilitation of an important urban surface water asset can drive local socioeconomic development.

Copenhagen's Harbor Enhancement:

Environmental Clean Up Sparks Economic Growth Until 2000

Copenhagen harbor was the depository for almost 100 storm overflow channels in the Danish capital city. Over a 10-year period, the city government upgraded the stormwater and wastewater systems, improved water quality, and developed open space and mixed-use facilities around the harbor. Today the harbor is a thriving neighborhood and a major leisure and recreation destination in Copenhagen. Residents and tourists report high levels of satisfaction. The number of cafés and restaurants near the harbor has increased threefold, and the market value of adjacent apartments increased by 57% over 2002–2011, compared to 12% in comparable areas far from the harbor. The geographically focused environmental cleanup plus place-making initiative has created real value and jobs and increased the quality of life for residents and tourists.

Source: "Copenhagen – Beyond Green," Green Growth Leaders.

Photo: Joe deSousa

Monitoring and Evaluation

The GCAP Implementation Committee will create and manage a performance monitoring and evaluation (PME) framework for the GCAP. The framework will define the roles and responsibilities of participating entities; the key performance indicators; the frequency of data collection, analysis and reporting; and the sources of finance for performance monitoring.

The PME framework will:

- Define indicators;
- Define baseline values;
- Monitor changes over time; once a year, collect data, calculate indicator values, and compare progress to targets;
- Propose adjustments to GCAP to make up for any gaps;
- Develop a long-term public awareness and information program;
- Organize public forums on the GCAP;
- Set up a project website in coordination with the GrEEEn Cities network; and
- Prepare biannual monitoring reports.

The table 8 sets out indicators that could be used to monitor progress on implementation of the GCAP.

GrEEEn City Scorecard and Citizen Monitoring Mechanism

An important step toward achieving GrEEEn Cities is to gather information that can be used by citizens to

monitor progress and direct actions towards sustainability. GrEEEn City Scorecards (GCSC) could be used as a monitoring tool on the model of community scorecards (CSCs).

Community Scorecard

CSCs are sustainability assessment tools widely used for monitoring delivery of services. CSCs are useful tools for providing service users the opportunity to monitor and evaluate services provided by local governments. It is believed that, if the service providers are more accountable to their clients, and more specifically, to low-income households, service provision will improve. Improvements of service delivery are both in terms of who can access them and their quality and cost.

GrEEEn City Scorecard for Hue City GCAP

GCSC can ensure citizens involvement for monitoring of livability indicators and priority needs for future development. GCSC can help local governments and communities to set targets and assess progress toward greener cities.

GCSC could be used by citizens to monitor not only delivery of services but also actions proposed under GCAP. The GCAP prepared for Hue city developed such scorecard to monitor the following initiative: “Sanitation and Drainage improvement in Citadel.” Appendix 5 presents the content of the scorecard.

Table 8: Proposed Indicators by Initiative

No.	Initiative	Description of Indicator	Data Sources and Reporting Mechanisms	Assumptions and Risks
Economic Competitiveness				
1	Initiative 2	Tourism GDP as a share of city GDP (%)	Government statistics, decrees and reports	Assumption Central and provincial governments continue to support the city's development as a regional growth center
2	Initiative 2	Tourism employment as a share of total employment (%)	Surveys	
3	Initiative 2	Tourist inflow to Hue (% change)	Provincial reports and economic statistics	
4	Initiative 3	City GDP (% change)	Monthly status and project progress reports	Risks None
5	Initiative 3	Area of parking facilities in the city (% change)		
Environment				
6	Initiative 1	Flood water containment capacity achieved through pond and canal rehabilitation (cubic meters, % change)	Monthly status and project progress reports	Assumption None
				Risks Occurrence of extreme floods
7	Initiative 1	Change in untreated domestic wastewater inflows into surface water bodies (%)	Monitoring data from DONRE of province	Assumption None
8	Initiative 1	Solid waste disposed in the Huong Binh landfill as a share of all waste collected (%)	Monthly status and project progress reports	
9	Initiative 1	Quality of Huong River water leaving the city (Parameters)	Monitoring data from DONRE of province	Risks: None
10	Initiative 1 & 3	Annual change to greenhouse gas emissions (tons per capita)	Monitoring data from DONRE of province	
Equity				
11	All initiatives	Unemployment level (%)	Government statistics, decrees, and reports	Assumption None
12	All initiatives	Poverty rate in the city (%)	Provincial reports and economic statistics	
				Risks None

GDP = gross domestic product, DONRE = Department of Natural Resources and Environment.

Note:

Initiative 1: Improve the urban environment.

Initiative 2: Enhance the tourism experience.

Initiative 3: Develop sustainable transportation in newly expanded Hue city.

Source: Asian Development Bank.

The Hue city GrEEEn City Action Plan (GCAP) proposed under two actions related to sanitation and drainage under its first initiative (Improve the urban environment): (i) Action 1: Develop a wastewater collection and treatment system in the Citadel and surrounding areas, and (ii) Action 2: Improve the drainage system for the four wards in the Citadel. Currently, the drainage system is a combined sewer system receiving storm water and wastewater.

To initiate a sustainable dialogue among service users and the service provider, Hue Environmental Protection Company (HEPCO) will implement a community scorecard that aims to improve the sanitation and water drainage systems. The Citadel area is a densely populated and cultural sensitive area. Therefore the protection of the architecture and character of the Citadel needs to be protected during the works. Streets are also often narrow and bordered with trees.

A sanitation, drainage, and protection committee will be created to implement this scorecard. The committee will gather representatives of citizens living in the Citadel; mass organizations (youth union, women's union); and other members of the civil society (i.e., nongovernment organizations involved in poverty reduction, flooding, and heritage protection in the Citadel).

The committee will develop an input tracking matrix that includes indicators to monitor progress. Indicators may include impacts of floods reduced, storm drain maintained, road and storm drain cleaned up, number of households connected to wastewater sewage, timeliness of the construction of infrastructure; and existing structures and trees protected.

The committee will then develop a matrix to score the performance of the proposed actions. HEPCO will develop its own scorecard and a meeting will be organized between the committee and HEPCO. The meeting will provide an opportunity for the development and protection committee to provide feedback to HEPCO and to negotiate agreements on improving the services and actions under GCAP together with relevant stakeholders.

Other Example of Green Scorecards

Cities already developed various types of scorecards (e.g., balanced green scorecards, sustainability scorecards) to measure and monitor activities related to environmental quality or to measure and monitor sustainability in the city. The boxes (pp. 41–42) present such experiences.

Green Scorecard for the Environment – City of Gothenburg

The city of Gothenburg uses balanced 'Green scorecards' as a means of measuring and presenting information on the environmental quality of each of the neighborhood areas of their 21 city district committees.

The green scorecard is based on four areas:

- Environmental behavior,
- Environmental situation,
- Infrastructure, and
- Environmental performance of city district committees.

As well as being an important tool for communicating local level environmental information to the city's district committees and their respective communities, the balanced scorecard technique has proved a successful means of raising awareness on how the four areas interlink and impact upon each other.

The new system is recognized as an innovative approach to the survey technique. Its main information source is a citizen satisfaction survey, through which responses to littering questions are combined into a "Nice and Clean" index before being presented on the scorecard.

The balanced scorecards allow each district to identify existing environmental issues in their areas and to target need by allocating resources accordingly. For example, in response to the most recent survey indicating that littering is a problem in many of the city districts, different activities including information campaigns and special clean-up activities have been planned for the coming year to address the problem.

Source: Clean Cities Working Group of the EuroCiTiEs Environmental Forum http://nws.eurocities.eu/MediaShell/media/Our_Clean_Cities_Best_Practice_Guide-JCHA_5175.pdf

Sustainability Scorecard for Wyndham City Council in Melbourne's West.

The Melbourne Sustainable Development Institute, under the University of Melbourne local sustainability developed with the Wyndham City Council in Melbourne's west an assessment tool (the scorecard).

The scorecard focuses on three pillars:

1. Environmental health
2. Economic security
3. Social well-being

Indicators are assigned to each of these groups. Many indicators contain elements of more than one 'pillar' and are therefore especially important in measuring overall sustainability.

The steps in developing the scorecard were:

1. Establishing a sustainability framework
2. Identifying key issues
3. Selecting indicators
4. Collecting data
5. Consulting with council staff
6. Reporting on the assessment

As part of step 3 (selecting indicators), the following questions were asked: (i) Does the indicator provide information about sustainability? (ii) Is acquisition of data feasible? and (iii) Can the Council take action that will improve the status of the indicator in the future?

Through consultation with Wyndham Council staff, a sustainability vision statement was proposed:

To develop a prosperous, healthy, and vibrant local community that maintains and enhances environmental systems for the benefit of current and future generations. Eighteen indicators were selected to be included in the Scorecard

ENVIRONMENTAL HEALTH

ECONOMIC SECURITY

SOCIAL WELL-BEING

KEY

Indicator bars denoting the relative performance of each selected sustainability indicator. Each indicator is measured according to its present condition relative to other comparable regions (state) and its change over time (trend).

Source: Christopher Ives. 2012. *Sustainability Scorecard: A tool to help local governments set targets and assess progress towards more sustainable futures*. Melbourne: University of Melbourne.

Appendixes

Appendix 1: List of Participants in Visioning Workshop Held in Hue on 22 November 2013

No.	Name	Organization
1.	Phan Trong Nghia	Hue City Urban Department
2.	Dang Phuoc Lap	Phu Vang District People's Committee
3.	Le Viet Chuong	Commerce Chamber
4.	Phan Ngoc Thi	Thua Thien Hue Province People's Committee
5.	Nguyen Huy Thai	Thua Thien Hue Province People's Committee
6.	Nguyen H Quyet	Department of Natural Resources and Environment
7.	Dao Van Co	Water Resource Division
8.	Pham Thanh Hoa	Ha Giang Province People's Committee
9.	Tran Dinh Vu	Ethnic Minorities Department
10.	Trong Van Ba	Ethnic Minorities Department
11.	Nguyen Thi Suu	Ethnic Minorities Department
12.	Dao Thanh Hang	Department of Planning and Investment
13.	Le Quang Dung	Department of Construction
14.	Le Toan Thang	Department of Construction
15.	Nguyen Manh Tuan	Water Company
16.	Tran Cong Phu	Department of Foreign Affairs
17.	Tran Kim Thanh	Department of Agriculture and Rural Development
18.	Mai Van	PMU Korea International Cooperation Agency
19.	Doan Si Bao	Hue Urban and Environmental Company
20.	Le Anh Tuan	Department of Industry and Trade
21.	Nguyen Xuan Nghia	Institute of Strategy
22.	Ho Dan	Department of Labour, Invalids and Social Affairs
23.	Huynh Van Duc	P Huong Company
24.	Ngo Hai Binh	Institute of Construction Planning
25.	Phan Canh Huy	Department of Planning and Investment
26.	Le Thi To Nga	Department of Planning and Investment
27.	Hoang Thuy Hong	Department of Planning and Investment
28.	Tran Lan Anh	Department of Planning and Investment
29.	Hoang Xuan Anh Tuan	Department of Planning and Investment
30.	Nguyen Ngoc Hung	Red Cross
31.	Bui Quyen	Department of Planning and Investment
32.	Pham Van Duoc	Business Association
33.	Phan Van Viet	Business Association
34.	Pham Thuy Dung	Department of Foreign Affairs
35.	Pham Thi Dieu My	Centre for Social Research and Development
36.	Phan Van Ngoc	Phu Vang District People's Committee
37.	Phan Quoc Son	Department of Planning and Investment
38.	Nguyen Hieu Tinh	Youth Union
39.	Nguyen Hong Phong	Department of Planning and Investment
40.		Hue PET
41.	Hoang Viet Trung	Huong Thuy District People's Committee
42.	Van Viet Nghia	Huong Thuy District People's Committee
43.	Nguyen Ngoc Linh	Huong Tra Town People's Committee
44.	Phan Vinh	Urban Management Division
45.	Dai Duc	Thua Thien Hue TV
46.	H.Nam	Youth Union

Appendix 2: List of Participants at the Stakeholder Meeting in Hue on 22 November 2013

No.	Name	Organization
1.	Vo Thi Hanh	Friends of Hue
2.	Tran	World Wildlife Fund
3.	Truong Anh Tung	Hue University
4.	Bao Quy	LUKS Cement Company
5.	Thien An	LUKS Cement Company
6.	Vo Thi Van Anh	Healthy Initiatives through Peer Education
7.	Nguyen Nam Anh	Healthy Initiatives through Peer Education
8.	Ho Quoc Huy	City Youth Union
9.	Nguyen Huu Thinh	Provincial Youth Union
10.	Katayami Eriko	Bridge Asia Japan
11.	Le Thi Lien	Bridge Asia Japan
12.	Pham Thi Dieu My	Centre for Social Research and Development
13.	Nguyen Thi Le Huyen	LUKS Cement Company
14.	Ngo Van Tuan	Hue University
15.	Hoang Minh Tuan	Science and Technology Association
16.	Pham Thi Lan	Women's Union
17.	Tran Van Hung	City Youth Union
18.	Ho Sy Toan	Ethnic Minorities Committee
19.	Truong Trong Khanh	Heart of Hue
20.	Nguyen Thi Diem	Hue Tourism Agency
21.	Le Hai Anh	Hue Help
22.	Pham Minh Hue	Women's Union
23.	Duong Thi Thu	Ethnic Minorities Committee
24.	Le Thi To Nga	Department of Planning and Investment
25.	Ho Thi Doan Trang	Women's Union
26.	Phan Canh Huy	Department of Planning and Investment
27.	Hoang Thuy Hong	Department of Planning and Investment
28.	Hoang Xuan Anh Tuan	Department of Planning and Investment
29.	Bui Quyen	Department of Planning and Investment
30.	Le Thi Thanh Huyen	Department of Planning and Investment
31.	Mai Ngu	Centre for Social Research and Development
32.	Tran Khanh Toan	Red Cross

Appendix 3: Results of the Visioning Exercise 2013

What you want your city to be in 10 years?

"A city with excellent physical conditions is not enough if the people who live there are not happy."

Source: Participants to the Visioning Exercise.

Appendix 4: Results of the Strengths, Weaknesses, Opportunities, and Threats Analysis

Strengths	Weaknesses
Geographical location (hub function)	Slow urbanization
Diversity (land, water)	Lack of raw natural and financial resources
Naturally preserved areas	Lack of infrastructure and outdated technologies (drainage, waste treatment, transportation)
Natural scenery maintained, low pollution	Encroachment into heritage site
Ecological assets	Low climate resilience
Strong historical and cultural heritage	Low capacity in environmental protection
Human capital	Lack of planning and preservation of open spaces/natural environment
Education center	Low community awareness for environment
International cooperation and partnerships	Rate of deforestation
Medical provision and facilities	“Laid-back” attitude inhibits thrive for development/innovation
Established brand “Hue”	Unemployment
Well-developed infrastructure (education, water supply, medical)	Complexity of government system and management
Tolerance	Limited number of investors vis-a-vis potential
Political commitment	Water bodies not well maintained, with negative impacts on citizens
International airport	Lighting and signage system insufficient
Transport connectivity (also rail)	Dependence on external tourist operations
Security system	Connectivity between tourist destinations
Developed industries (tourism, textiles, construction materials, (sea) food processing, high tech, beverage)	
Opportunities	Threats
Support from central government and external donors and/or investors	Effects of climate change (sea-level rise etc.)
Tourism center (and development in other locations)	Disaster-prone geographical features
Vocational training and jobs in tourism and health care, handicrafts	High construction and development costs
(New) tourism niches (spiritual, etc.)	Degradation of heritage sites and shortening of tourist season due to climate change
Health center development	Geographical separation of coast line
Building on the brand	Integration leading to intensified (inter-) national competition
Heritage preservation strategy	Growth of (facilities in) Da Nang
	Balance between economic growth and heritage preservation

Appendix 5: Community Scorecard for Sanitation and Drainage improvement in the Citadel GrEEEn City Action Plan – Hue City

The Hue city GrEEEn City Action Plan (GCAP) proposed under two actions related to sanitation and drainage under its first initiative (Improve the urban environment): (i) Action 1: Develop a wastewater collection and treatment system in the Citadel and surrounding areas, and (ii) Action 2: Improve the drainage system for the four wards in the Citadel. Currently, the drainage system is a combined sewer system receiving storm water and wastewater.

To initiate a sustainable dialogue among service users and the service provider, Hue Environmental Protection Company (HEPCO) will implement a community scorecard that aims to improve the sanitation and water drainage systems. The Citadel area is a densely populated and cultural sensitive area. Therefore the protection of the architecture and character of the Citadel needs to be protected during the works. Streets are also often narrow and bordered with trees.

A sanitation, drainage, and protection committee will be created to implement this scorecard. The committee will

gather representatives of citizens living in the Citadel; mass organizations (youth union, women's union); and other members of the civil society (i.e., nongovernment organizations involved in poverty reduction, flooding, and heritage protection in the Citadel).

The committee will develop an input tracking matrix that includes indicators to monitor progress. Indicators may include impacts of floods reduced, storm drain maintained, road and storm drain cleaned up, number of households connected to wastewater sewage, timeliness of the construction of infrastructure; and existing structures and trees protected.

The committee will then develop a matrix to score the performance of the proposed actions. HEPCO will develop its own scorecard and a meeting will be organized between the committee and HEPCO. The meeting will provide an opportunity for the development and protection committee to provide feedback to HEPCO and to negotiate agreements on improving the services and actions under GCAP together with relevant stakeholders. Table A1 presents details on the proposed community scorecard.

Table A1: Hue City: Community Scorecard for Improvement of Sanitation and Drainage Conditions in the Citadel

What is the purpose of the scorecard?	<ul style="list-style-type: none"> - The scorecard aims to monitor the improvement of sanitation and drainage conditions following the implementation of Action 1: Develop a wastewater collection and treatment system in the Citadel and surrounding areas, and Action 2: Improve the drainage system for the four wards in the Citadel under Initiative 1 of the GCAP.
Where will the scorecard be implemented?	<ul style="list-style-type: none"> - The scorecard will be implemented in the four wards of the Citadel. The Citadel area is a densely populated and culturally sensitive area.
Who will implement the scorecard?	<ul style="list-style-type: none"> - A sanitation, drainage, and protection committee will be created. It will gather representatives of citizens; mass organizations (youth union, women's union); and of other members of the civil society (i.e., nongovernment organizations involved in poverty reduction, flooding, and heritage protection); - A facilitator, which may be a nongovernment organization, may assist the committee

What are the steps in implementing the scorecard?

1. Plan and prepare

- Establish the development and protection committee by the Hue City People's Committee;
- Identify and train lead facilitators;
- Contact and secure cooperation of the relevant service providers (i.e, HEPCO);
- Identify the main groups who may have an interest for the drainage development and heritage protection in the city;
- Develop a work plan and a budget for the full scorecard exercise.

2. Implement the scorecard. The committee will

- Generate and prioritize issues (i.e., flooding improvement, environment improvement, infrastructures development, etc.);
- Develop input indicators for drainage and heritage protection such as reduction of flood impacts, road and storm drain cleanup, number of connections of household to wastewater sewage, timeliness of the construction of infrastructure, and protection of existing structures and trees.

3. Develop an input tracking matrix (An example of this matrix is presented below)

Input/indicator	Entitlement/Plan budget	Existing situation	Remark/comments
- Impacts of floods reduced	- Gravity pumping station - Adequate size of pipes - All streets equipped with surface retention boxes	- Some streets were flooded due to malfunction of the pumping station	- Lack of maintenance for the pumping station
- Road and storm drain cleaned up	- Cleaning every month	- Cleanup is not regularly done	- Lack of employees - Some households are throwing waste in the ditches and drains
- Fences and structures protected	- All works within the existing right-of-way of the road	- Some old fences have been demolished	- Some workers are not aware of location of civil works
- Trees protected	- Protection of existing trees and planting new trees in all streets	- Some existing trees have been cut; some streets without new trees planted	- Cutting of trees only if tree got disease - Tree planting to be completed
- Number of households connected to wastewater sewage	- All households connected in Thuan Thanh, Thuan Loc, Tay Loc, Thuan Hoa wards	- Some houses not along main streets not connected in the following areas	- Houses far from the street need to be connected
- Quality of water during flooding	- Separate sewage and storm water pipes	- Some wastewater still present during flooding	- Source of wastewater to be identified
- Expenditures on sewage and drainage system	- \$4 million	- \$3 million	- Delay in hiring contractor
-	-	-	-
-	-	-	-

4. Develop a matrix for scoring and score the performance. This could be done by subgroups (women, business etc.)

	Community Criteria	Score 1-5	Reasons and/or Comments
A	Reduction of flooding	-	
A-1	- Road and storm drain cleanliness	2	In some streets, rains often obstructed by waste lead to increase flooding No regular cleanup Awareness program for solid waste management
A-2	- Inundation of houses	4	Reduction of number of houses inundated noticed during major flooding
A-3	-		

B	Improvement of environment		
B-1	- Water quality during flooding	3	Few wastewater during flooding Improved environment notices after flooding
B-2	- Tree-lined streets	4	New trees planting enhance attractively of streets for cyclists and pedestrians
B-3	- Increase in tourists visiting the Citadel	4	More tourists (cyclists and pedestrians) use the streets due to the presence of trees and better sanitation conditions Improvement of streets lighting necessary
B4	- Reduction of disease	4	Prevalence of diarrhea was reduced in Thuan Thanh and Thuan Loc wards
C	Transparency and Efficiency of Construction		
C-1	- Timeliness of drainage construction	3	Delay in construction
C-2	-		

5. Develop the scorecard for the service providers

- HEPCO and other relevant services will make self-evaluation of the services provided under the GCAP; it will help the SDPC to assess the performance from the supply side.
- The steps are almost identical to the generation of the community scorecard as presented above and involves facilitated brainstorming on criteria for self-evaluation and scoring done in small groups of the providers.

6. Conduct interface meeting

- The main purpose of the interface meeting is to share the scores generated by the development and protection committee and by HEPCO to ensure that feedback from the community is taken into account, and that concrete measures are taken to improve services and/or maintain good practices. The meeting should provide an opportunity for the committee to provide feedback to service providers and to negotiate agreements on improving the services under GCAP together with stakeholders.

Hue GrEEEn City Action Plan

The GrEEEn City Action Plan (GCAP) of Hue in Thua Thien Hue Province, Viet Nam, is a time-bound action plan to respond to the city's challenges of rapid urbanization by integrating urban development with environmental planning. Based on the flexible and scalable GrEEEn Cities Approach of “doing things differently,” this GCAP will guide Hue in becoming a highly sustainable, world-class tourist destination through cross-sectoral actions that combine economic, environmental, and equity features—the 3Es of a grEEEn city. The rehabilitation of the renowned Citadel in Hue will be an anchor point of these efforts toward a more livable and resilient city.

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