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TECHNICAL REPORT

PROJECT SUMMARY: HUE CLIMATE IMPACTS DECISION SUPPORT TOOL



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Engility Corporation Contact:
Glen Anderson, Chief of Party, Glen.Anderson@EngilityCorp.com
Engility Corporation
1211 Connecticut Ave., NW
Suite 700
Washington, DC 20036

Cover Photo: Henry Tsang, Adaptive transportation in flooded Hue (Vietnam)

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Prepared by:

Andrea Martin, Program Manager
Thu Tran, Program Assistant
Cascadia Consulting Group, Inc.
Seattle, WA

Contact: Michael Cote, Engility Corporation, Michael.Cote@EngilityCorp.com

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ACRONYMS

Cascadia	Cascadia Consulting Group
CCRD	Climate Change Resilient Development
CIMPACT-DST	Climate Impacts Decision Support Tool
HPI	Hue Planning Institute
IMHEN	Institute of Meteorology, Hydrology, and Environment
ISSET	Institute for Social and Environmental Transition-International
M-BRACE	Mekong-Building Resilience to Climate Change in Asian Cities
MOC	Ministry of Construction
MONRE	Ministry of Natural Resources and Environment
PPC	Provincial People's Committee
USAID	United States Agency for International Development
VIUP	Vietnam Institute for Urban-Rural Planning

I. DOCUMENT OVERVIEW

Cascadia Consulting Group, Inc. (Cascadia), on behalf of the U.S. Agency for International Development (USAID) and in collaboration with the Hue Planning Institute (HPI) configured, tested, and deployed Cascadia’s Climate Impacts Decision Support Tool (CIMPACT-DST, “the tool”) for Thua Thien-Hue province in support of integrating climate change considerations into planning activities in Thua Thien-Hue province.

This *Project Summary Report* begins with an overview of the project in Thua Thien-Hue province and follows with descriptions of:

- CIMPACT-DST customization and deployment in Thua Thien-Hue;
- local tool use and management to date; and
- anticipated future tool use and management, including coordination with the scaled-up national-level CIMPACT-DST.

2. EXECUTIVE SUMMARY

Home to 340,000 residents and a popular United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site, the city of Hue, Vietnam stands to experience more extreme flooding and temperature increases as the climate changes, posing significant threats to vulnerable populations, agricultural productivity, natural and built environments, and socio-economic development.

A project team working under USAID's Climate Change Resilient Development (CCRD) Climate Resilient Infrastructure Services (CRIS) program collaborated with a diverse group of city stakeholders to customize and apply a tailored software tool that facilitates integration of climate change considerations into Hue's urban planning process. The Climate Impacts Decision Support Tool (CIMPACT-DST) brings together information about locally relevant climate stresses—information that is typically found in multiple technical reports and is often difficult for non-scientists to interpret—into one place, using language that is accessible to urban planners and other city staff.

The project aimed to satisfy the following key objectives:

- Configure a locally-customized version of Cascadia's CIMPACT-DST
- Transfer tool use and maintenance capacities to identified tool administrators
- Deploy Hue CIMPACT-DST in informing more climate-resilient local urban planning activities
- Assess needs and scalability for customization of a broader, national-level tool

A variety of instruments were employed to evaluate project success, including surveys, small group discussions, and case study examinations. Project evaluation revealed the following key findings:

- **Tool Comprehension and Relevance:** Generally, users found the tool's output information useful and sufficient for informing climate-resilient urban planning decisions. Tool administrators independently integrated local spatial information for additional areas into the Hue CIMPACT-DST and requested the inclusion of more visual and locally-produced impacts and guidance information, to which Cascadia supported integration of outputs that hyperlink to specific report pages or websites.
- **Administrative Capacity:** Tool administrators found the tool administrator guide and trainings useful for executing tool updates; however, administrators with limited scientific knowledge expressed the need for a common sustainable mechanism for sharing information among provincial departments, such as the Department of Natural Resources and Environment, and updating Hue CIMPACT-DST accordingly. A meeting with the Provincial People's Committee in July 2014 established initial support for such a mechanism.
- **Tool Use:** Thus far, urban planners at HPI have used Hue CIMPACT-DST to inform climate-resilient master planning for four communes in Thua Thien-Hue province—reducing the vulnerability of tens of thousands of residents by 2030—and plan to apply the tool to additional plans in the coming year.
- **Community Resilience:** Most users claim that the tool changes the way they approach, plan, and implement planning projects. Thus far, HPI planners have integrated several new resilience

features into their plans, including softer infrastructure along coastlines, conservation of natural floodplain areas, and introduction of more saline-tolerant agriculture.

- **Tool Administration:** The tool administrators have not encountered difficulties in updating the tool with new information. Updates to the tool by HPI administrators include new flood maps for all districts in Thua Thien-Hue province.

The challenges, successes, and outcomes of this project revealed the following key lessons and recommendations:

- **Establish a shared understanding of potential uses.** Arriving at a common, shared understanding of all potential use scenarios prior to tool customization activities would streamline tool customization and optimize applicability.
- **Tap local knowledge.** Insight and review from local experts and leaders were crucial for prioritizing, ground-truthing, and amending the information for improved usefulness and dependability.
- **Establish and foster key relationships.** Establishing close collaborative relationships with local and respected climate experts and key stakeholder organizations was vital to generating accepted and locally relevant climate information as well as overall project support.
- **Secure buy-in.** Organization of a culminating project workshop promoted cross-departmental coordination and buy-in for the project, nurturing a sense of local ownership and inciting enthusiasm for the project.
- **Leverage existing processes and resources.** Instead of building a stakeholder group and review process from scratch, leveraging the relationships, processes, and momentum of an existing stakeholder group or process saved time and resources for both the project team and its stakeholders.
- **Make it official.** Achieving official support from the Provincial People’s Committee served as a critical step towards sustained and distributed use of Hue CIMPACT-DST in the province.
- **Get local.** Tool users were more willing to use and own the tool that was customized just for them. Actions to generate and integrate locally-generated and relevant information and tools should be pursued, where possible.
- **Think long-term.** Clear plans and steps for sustained use and maintenance after project completion should be outlined as early in the project as possible to best position the project for long-term success.

The observed successful deployment of the Hue CIMPACT-DST affirms the need and usefulness of such a tool in guiding climate-resilient urban planning in Vietnam. Official approval from the Provincial People’s Committee further demonstrates this value, as well as establishes a foundation for sustainable use and management of the Hue CIMPACT-DST in the long term. Moreover, Vietnam’s unique enforcement capacity means that climate-resilient adjustments to urban plans will likely result in increased resilience on the ground. The model demonstrated through this pilot project—customization of an established tool for a particular jurisdiction or context to inform local decision-making—appears ripe for replication in other areas or applications. However, preconditions for success should be considered in replicating these efforts, including relative enforcement capacity, the availability of existing information, presence of existing stakeholder groups, and identification of a project “champion” early in the process.

3. PROJECT INTRODUCTION

3.1 BACKGROUND

Vietnam has high exposure and sensitivity to sea level rise. The country has over 3000 km of low elevation coastal lands (defined here as the contiguous area along the coast that is less than 10 m above sea level) containing over fifty-percent of the country's population and approximately 300 coastal cities. Compounding this vulnerability, much of Vietnam is located within typhoon and flooding zones. These extreme natural disasters have resulted in significant loss of life and property damage in recent years. Although Vietnam has applied various measures, such as sea dike construction, improved river management, and forecasting and early warning systems for flood control, it is still extremely affected by floods. Urban sprawl leads to an increasing number of residents living in low-lying areas.

Climate change poses significant risks to vulnerable groups, agriculture, natural, and built environments, while socio-economic development and population growth in Vietnam in recent decades has exposed more people and assets to those impacts. Climate projections indicate that more intense rainfall events, sea level rise, and increasing temperatures will continue. To respond to the real and significant risks posed by climate change, Vietnam's Prime Minister issued Decision No. 158/2008/QĐ-TTg, outlining the "Approval of National Target Program to respond to Climate Change." Consistent with this decision, every Ministry and local authority must develop a climate action plan to address projected climate change impacts.

The city of Hue is among the jurisdictions in Vietnam required to address climate change. The old imperial capital city, Hue is home to 340,000 residents. Tourists visit Hue to see the Citadel, a walled fortress that contains the imperial grounds of the former Nguyen dynasty, and a popular United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site. Hue is a growing city and serves as a regional transportation hub; however, climate change poses threats to this city's continued success.

Hue is subject to typhoon-induced floods that are projected to become more extreme as the climate continues to change.¹ Climate change will also bring temperature increases and sea level rise that pose risks to tourism, public health, and infrastructure.² One strategy to help build city-wide resilience to these impacts is to incorporate climate change and adaptation considerations into the city's urban plans. However, integrating climate change information into land-use decisions and urban planning is a challenge for Hue and many other cities, due in part to the complexity and sheer volume of climate information, as well as the difficulty of altering established planning processes.

A project team from Cascadia Consulting Group, working under USAID's Climate Change Resilient Development (CCRD) Climate Resilient Infrastructure Services (CRIS) program, collaborated with a diverse group of city stakeholders to customize and apply a tailored software tool that facilitates integration of climate change considerations into Hue's urban planning process. The tool customized for Hue served as a pilot to test the scalability and applicability of such a tool to additional jurisdictions.

¹ Institute of Meteorology Hydrology and Environment (IMHEN). (2012). *Climate change, sea level rise scenarios for Vietnam*.

² Tran, P., & Shaw, R. (2007). *Towards an integrated approach of disaster and environment management: A case study of Thua Thien-Hue province, central Viet Nam*. *Environmental Hazards*, 7(4), 271–282. Retrieved from: doi:10.1016/j.envhaz.2007.03.001.

The Climate Impacts Decision Support Tool (CIMPACT-DST™) was originally built by Cascadia Consulting Group to help staff at the City of Seattle, Washington in the United States to identify and address projected climate impacts to City assets and infrastructure (see *The Seattle Climate Impacts Planning Tool* text box). It brings together information about locally relevant climate stresses—information that is typically found in multiple technical reports and is often difficult for non-scientists to interpret—into one place, using language that is accessible to urban planners and other City staff. The tool is housed in Microsoft Excel, a program that is accessible to most potential users. By providing concise and easy-to-understand summaries of local climate change impacts and displaying these alongside adaptation strategies, a CIMPACT-DST user can quickly identify which climate change impacts they need to consider, how those impacts may affect a specific sector and location, and what responses or adaptation strategies could improve resilience in their project design and land-use decisions. Adaptation strategies integrated into CIMPACT-DST are based on feedback gathered through local stakeholder engagement.

3.2 PARTNERS

Gathering, reviewing, and refining the information inherent in climate impacts planning requires considerable time and stakeholder engagement. For Hue, it was important that the users of the tool (primarily City staff) were confident that the information was “approved” by their leaders. To achieve this, local stakeholders worked together to reach important decisions around what information to include, from which sources, and how best to organize that information to integrate with existing urban planning processes and systems.

During the process, a key project partner was the Institute for Social and Environmental Transition (ISET), an NGO with a local presence and established stakeholder relationships. A local stakeholder group, previously assembled to advise an earlier vulnerability assessment, provided important contributors who reviewed much of the tool’s core information. This group consisted of representatives from the following organizations:

- Department of Natural Resources and Environment (DONRE)
- Board of Flood and Typhoon Prevention
- Association of Planning and Urban Development
- Department of Planning and Investment
- Department of Architecture, Hue College of Sciences
- Department of Agriculture and Rural Development (DARD)
- Hue Monuments Conservation Center
- Department of Construction (DOC)

The Seattle Climate Impacts Planning Tool

Cascadia Consulting Group first developed the Climate Impacts Decision Support Tool (CIMPACT-DST) for the City of Seattle, Washington, USA to assist City staff in incorporating climate change considerations into their decision making.

A new policy required that staff consider climate change in their infrastructure projects, but the City lacked a clear resource or tool to guide staff through the process. CIMPACT-DST allowed the City to consolidate and tailor climate information and adaptation guidance for their staff so that it was relevant to their individual job responsibilities, focused on issues important to the City of Seattle, and consistent with other pertinent local policies.

The tool’s initial deployment occurred in 2011. One prominent example of the City’s use of the tool involves a bridge retrofit conducted by the Seattle Department of Transportation. A project team used the tool to inform reconstruction of a local drawbridge, and as a result, engineers discovered that the planned bridge joints were not compatible with projected future temperature increases. With this information, engineers revised the expansion joint design, saving money on future maintenance and insuring better long-term bridge function.

The Hue Planning Institute (HPI or the Institute) served as the project’s primary local “champion” as well as eventual administrator and core user of the tool. This Institute, a quasi-governmental entity that functions as an in-house consultant for the Provincial Department of Construction, was chosen by the project team for its close ties to the local planning context, policy makers, and government agencies, as well as the willingness and interest of its director to address climate change in their work.

Cascadia aimed to build confidence in CIMPACT-DST by bringing in local information and knowledge from these and other collaborators. Climate information and guidance were locally vetted and revised based on stakeholder feedback. Tool outputs were tailored to align with the City’s current urban planning classification systems and processes.

3.3 TIMELINE

In 2012, Cascadia began the process of customizing the CIMPACT-DST for the City of Hue, Vietnam through information gathering and relationship building. Cascadia and HPI signed a memorandum of understanding (MoU) to collaborate on the project. In March 2013, Cascadia introduced CIMPACT-DST to the Hue community at ISET’s final workshop for the M-BRACE project, which culminated in the City’s official vulnerability assessment and climate action plan.

In 2013, Cascadia customized and finalized the Hue CIMPACT-DST with support from HPI, ISET, and M-BRACE stakeholders. The tool content was compiled from multiple sources, including the Vulnerability Assessment (VA) of Hue conducted in the M-BRACE program and local climate studies. Cascadia also reviewed and integrated the City’s available spatial information, including flood maps generated by the Japanese International Cooperation Agency (JICA). Hue CIMPACT-DST was beta-tested both internally among Cascadia staff and externally among HPI planners before deployment in Hue. In June, 2013, Cascadia trained HPI staff to use and manage the fully customized Hue CIMPACT-DST. By the end of 2013, HPI tool users had independently applied the tool to several master plans in coastal new urban areas of Thua Thien-Hue province.

In early 2014, Cascadia supported HPI in further customizing the tool with additional climate impact maps and functions. In July, 2014, HPI and Cascadia organized a meeting with Thua Thien-Hue Provincial People’s Committee (PPC) to request official approval for inter-departmental coordination and support around CIMPACT-DST implementation and maintenance. The PPC issued an official request for local governmental departments to collaborate on Hue CIMPACT-DST’s further application and customization in the province.



Hue CIMPACT-DST Project Timeline

3.4 GOALS & OBJECTIVES

The project team sought to achieve the following objectives:

3.4.1 TOOL CUSTOMIZATION

First, the project team aimed to configure a locally-customized version of Cascadia’s CIMPACT-DST that incorporates the latest relevant climate information and policies, is informed by local expertise, and meets the organizational and informational needs of its users. This objective included achievement of the following tasks:

- Utilization of outcomes from Hue’s vulnerability assessment process to inform tool configuration
- Integration of the most thorough and complete spatial information available for flood risks, vulnerable population areas, and urban heat islands
- Integration of the latest available climate science data from the National Institute of Meteorology, Hydrology, and Environment (IMHEN)
- Design of an organizational structure for Hue CIMPACT-DST that most closely reflects the urban planning process employed in Vietnam
- Review of draft tool content by local stakeholders and integration of stakeholder input
- Translation of all tool content and structure into Vietnamese

3.4.2 TECHNOLOGY TRANSFER

Second, the project team aimed to transfer tool use and maintenance capacities to identified tool administrators, to contribute to the tool’s longevity and sustained use after donor support ended. This objective included achievement of the following tasks:

- Internal and external beta-testing of the tool
- Onsite group tool user training and tool administrator training
- Compilation of a tool user guide and tool administrator guide

3.4.3 TOOL DEPLOYMENT

Third, the project team aimed to successfully deploy Hue CIMPACT-DST in informing more climate-resilient urban planning activities. Deployment included achievement of the following tasks:

- Application of the tool in local planning activities
- Further customization of the tool by HPI tool administrators, as needed
- Collaboration of local provincial departments in tool deployment, management, and further customization

4. PROJECT EVALUATION

4.1 METHODOLOGY

A variety of instruments were employed to evaluate project success, including surveys, small group discussions, and case study examinations. These methods sought to assess progress against the following key evaluation criteria:

Evaluation Criterion	Indicator(s)
Objective 1: Tool Customization	
Tool Comprehension	Is the quality and quantity of information provided by the Hue CIMPACT-DST sufficient for understanding and incorporating projected climate impacts into local planning projects? Is there any crucial information that is missing or misrepresented?
Tool Relevance	Does the Hue CIMPACT-DST's information represent the latest knowledge and understanding? Is it sufficiently customized to the local context to allow for understanding and incorporation of projected climate impacts into local planning projects?
Objective 2: Technology Transfer	
Administrative Capacity	Do tool administrators have the capacity to disseminate, update, and maintain the tool over time?
Objective 3: Tool Deployment	
Tool Use	Have urban planners used the Hue CIMPACT-DST to inform climate-resilient urban planning?
Community Resilience	Has use of CIMPACT-DST increased local community resilience through more climate-resilient urban planning?
Tool Administration	Has CIMPACT-DST been locally updated with new or additional information or functionality, as needed?

4.1.1 TOOL USE FEEDBACK FORM

Cascadia designed a Tool Use Feedback Form to gather feedback from tool users (see Appendix A). The form addressed tool usefulness, effectiveness in increasing resilience-building behaviors, and deployment for specific urban planning projects. The feedback form was emailed to all five potential HPI users in October 2013. Cascadia received three completed forms from HPI staff who used the tool in their planning projects.

4.1.2 TOOL UPDATE FEEDBACK FORM

Cascadia designed a Tool Update Feedback Form to gather feedback from HPI tool administrators who completed updates to the Hue CIMPACT-DST (see Appendix B). The form assessed the relative ease of updating the tool, as well as potential areas for improvement. Cascadia received one completed form on behalf of the two HPI tool administrators.

4.1.3 SMALL GROUP DISCUSSION

Cascadia organized small discussion group evaluations during visits in October 2013 and April 2014. Discussion focused on use and maintenance of the tool to date and plans for future use and updates. A list of attendees to these small group discussions is provided in Appendix C.

4.1.4 SITE VISIT CASE STUDIES

HPI tool users led site visits to case study areas where HPI had applied the Hue CIMPACT-DST to particular urban master plans (see Appendix D). During the visits, HPI explained how the Hue CIMPACT-DST was used to inform specific elements of the urban master plan, as well as the tool's benefits, drawbacks, and needed improvements. Cascadia accompanied HPI staff on two case study site visits:

- In October 2013, Cascadia accompanied HPI staff to Vinh Thanh commune, Phu Vang district.
- In April 2014, Cascadia accompanied HPI staff to Vinh Hien commune, Phu Loc district.

4.2 FINDINGS

Project evaluation using the above methods revealed the following key findings.

- **Tool Comprehension and Relevance:** Generally, users found the tool's output information useful and sufficient for informing climate-resilient urban planning decisions. One exception is the spatial information. Although originally intended for use within city limits, tool administrators expressed interest in applying the tool to plans in surrounding communes of the province that were expected to develop in the coming years. Tool administrators independently integrated local spatial information for these additional areas into the Hue CIMPACT-DST. Administrators also requested the inclusion of more visual and locally-produced impacts and guidance information, to which Cascadia supported integration of outputs that hyperlink to specific report pages or websites.
- **Administrative Capacity:** Tool administrators found the tool administrator guide and trainings useful for executing tool updates; however, administrators with limited scientific knowledge expressed the need for a common sustainable mechanism for sharing information among provincial departments, such as the Department of Natural Resources and Environment, and updating Hue CIMPACT-DST accordingly. A meeting with the Provincial People's Committee in July 2014 established initial support for such a mechanism.
- **Tool Use:** Thus far, urban planners at HPI have used the Hue CIMPACT-DST to inform climate-resilient master planning for four communes in Thua Thien-Hue province—reducing the vulnerability of tens of thousands of residents by 2030—and plan to apply the tool to additional plans in the coming year.
- **Community Resilience:** Most users claimed that the Hue CIMPACT-DST changed the way they approach, plan, and implement planning projects. Thus far, HPI planners who applied the Hue CIMPACT-DST have integrated several new resilience features into their plans, including softer infrastructure along coastlines, conservation of natural floodplain areas for flood storage services, and introduction of more saline-tolerant agriculture.
- **Tool Administration:** The tool administrators have not reported any difficulties in updating the Hue CIMPACT-DST. Updates to the tool by HPI administrators include new flood maps for all districts in Thua Thien-Hue province.

4.2.1 TOOL CONFIGURATION

Configuring the CIMPACT-DST tool for Hue required the compilation and consolidation of the most relevant local climate change information. These data included regional climate projections approved by the national government, local-scale spatial representations of current and future climate impacts (e.g., flood maps), climate-related policies, and sector-specific climate impact summaries and adaptation strategies.

Key customizations included the following:

4.2.1.1 SPATIAL INFORMATION

Initially, the project team had difficulty identifying high-resolution, city-scale climate information. Lower-resolution regional climate information was available through the Vietnam Institute of Meteorology, Hydrology, and Environment (IMHEN), which provides climate projections for temperature, precipitation, and sea level rise. However, there are other elements of urban planning, such as flood risk mapping, for which IMHEN's data was either unavailable or insufficient. Obtaining such information would require the use of more sophisticated, localized models and spatial information than those readily available from a national-level government agency such as IMHEN—a situation not unique to Vietnam.

To address the lack of spatially relevant information, the project team convened the M-BRACE project stakeholder group for a spatial information workshop. During the workshop, stakeholders were asked to review and “ground-truth” existing flood maps and identify areas where urban heat islands were known to exist. This local knowledge and insight was fundamental to creating the climate impact maps that are used in conjunction with the Hue CIMPACT-DST tool.

Ultimately, spatial information integrated into the Hue CIMPACT-DST included flood maps produced by the Japan International Cooperation Agency (JICA) and a local knowledge-based urban heat island map. After initial customization, HPI tool administrators also generated GIS flood maps for other districts in Thua Thien-Hue province, which HPI tool administrators then integrated into the tool.

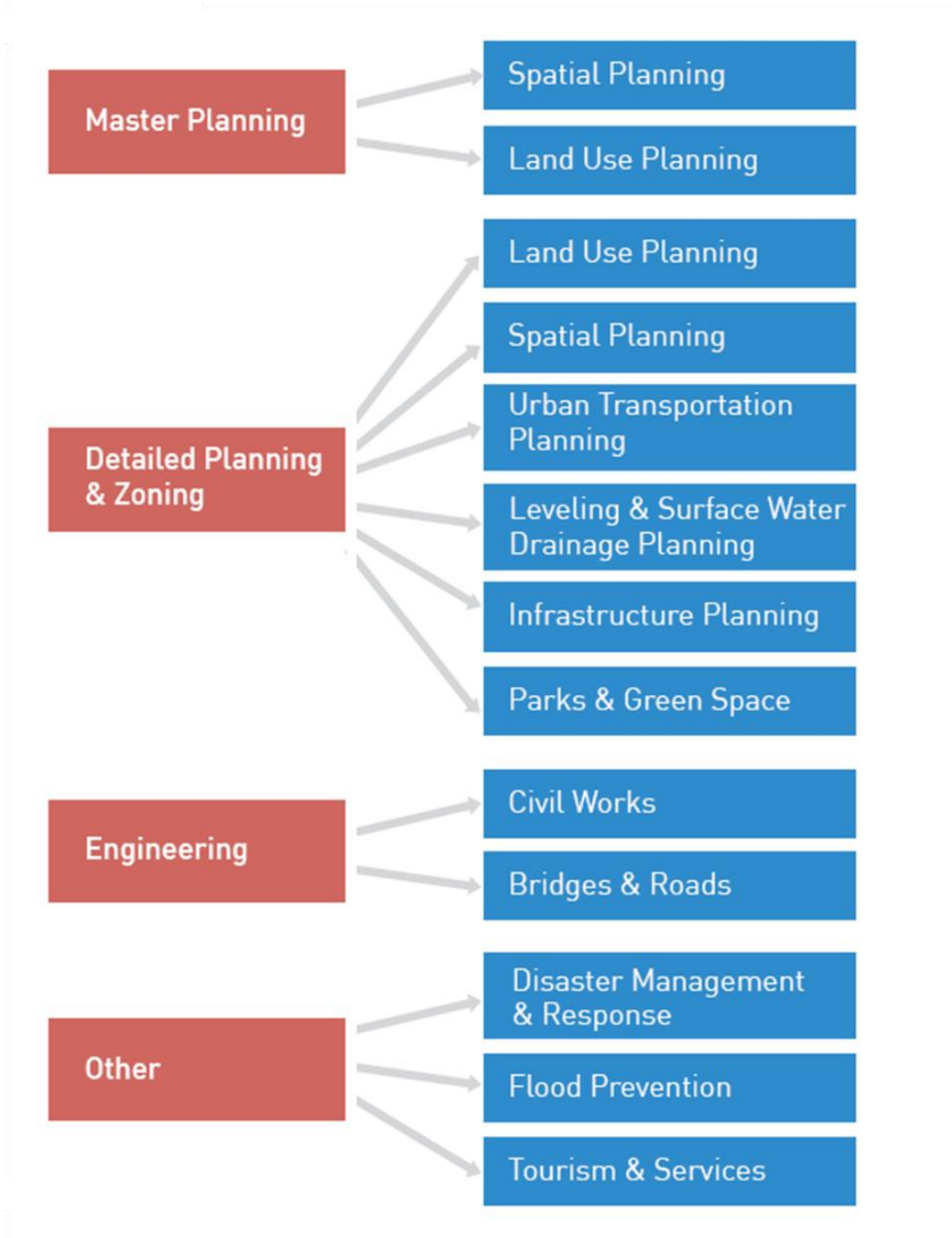
4.2.1.2 IMPACTS AND GUIDANCE INFORMATION

The project team gathered a multitude of local and regional climate-related reports and information sources. Following a major flood in 1999, more than 70 climate-related studies were conducted within the project area, varying in their level of depth and relevance to the project. Sifting through such a large volume of reports to find accurate, relevant, accepted inputs for the tool presented a significant challenge.

To address the surplus of climate impacts and guidance information, the project team devised a systematic and adaptive process for reviewing, vetting, and consolidating available information. Cascadia worked closely with a local partner NGO and a previously established working group to engage with the City on a multi-stakeholder vulnerability assessment study. This included convening a workshop to review and gather feedback on the proposed climate planning tool framework and climate information sources. The stakeholder group of local leaders and experts became well informed about the key climate issues facing Hue, able to effectively review and revise the presented information to ensure the tool's reliability and relevance. The project team worked with the stakeholder group over the course of several months to review and revise the key tool inputs.

4.2.1.3 STRUCTURE AND FUNCTION

The Hue CIMPACT-DST was designed to reflect the urban planning process in Vietnam. Cascadia used feedback from stakeholder workshops to arrive at an organizational structure of planning types, planning sectors, and relevant departments that form the basis for tool format and function (see figure below).



The organization framework of Hue CIMPACT-DST, which was customized to reflect the Vietnam planning process

4.2.2 TECHNOLOGY TRANSFER

4.2.2.1 ONSITE TRAINING

Hue CIMPACT-DST was transferred to HPI ownership in a culminating project workshop in June 2013. Multiple city departments and staff levels were represented at the workshop, which contributed toward increased acceptance and buy-in for the tool and its application (see Appendix C for a list of attendees).



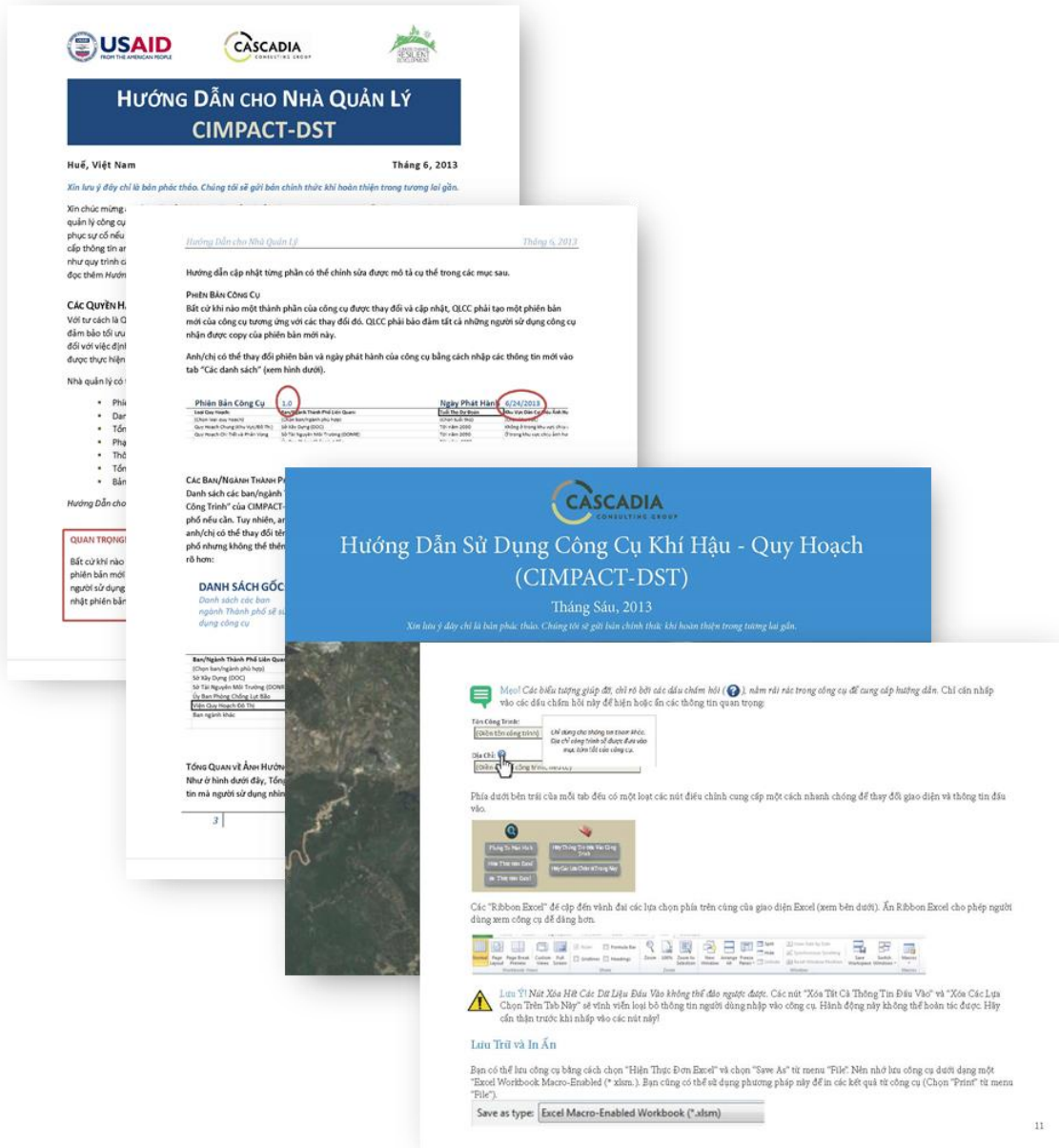
Mr. Nguyen Viet Tien, Chairman of Thua Thien-Hue Planning and Development Association, spoke about the importance of securing widespread support for the tool and using accepted and official information.

The Cascadia project team trained 46 users (41 male, 5 female) on Hue CIMPACT-DST. An initial detailed tool user training was conducted at the HPI for 5 key staff (4 male, 1 female), and a second higher-level user training was conducted for 41 participants (37 male, 4 female) at the culminating project workshop. A paucity of female HPI staff resulted in male-dominated attendance. Trained staff were asked to train other interested users, as appropriate.



Cascadia led a training session for the designated administrators of Hue CIMPACT-DST at the Hue Planning Institute. The administrators followed along on their laptops as the Cascadia team introduced the tool and its update procedures through the user guide, administrator guide, and example scenarios.

The project team also completed and distributed a CIMPACT-DST User Guide and Administrator Guide, in English and Vietnamese.



Excerpts from the Hue CIMPACT-DST Administrator Guide and User Guide

4.2.3 TOOL DEPLOYMENT

Since the Hue CIMPACT-DST was transferred to HPI ownership in a culminating project workshop in June 2013, the tool has been used by five planners at HPI: 1) Mr. Ngo Hai Binh, 2) Mr. Dang Hoang Linh, 3) Mr. Nguyen Xuan Nghia, 4) Dr. Dang Minh Nam, and 5) Mr. Nguyen Cong Minh. Among these users, Mr. Linh and Mr. Nghia have served as key tool administrators, adding new content and spatial information as needed.

Although the Hue CIMPACT-DST was originally designed for urban planning activities within the city of Hue, HPI creatively applied the tool to new areas outside the city. Where those new sites were not already covered by the tool's maps, HPI referenced map areas in the tool that were similar to the project planning area in order to determine project exposure. Thus far, HPI has used the Hue CIMPACT-DST to inform the following new urban master plans in Thua Thien-Hue province (see plan summaries in Appendix D):

1. Vinh Thanh Commune, Phu Vang District
2. Vinh Hien Commune, Phu Loc District
3. Dien Loc Commune, Phong Dien District
4. Phong An Commune, Phong Dien District

HPI administrators have also completed one primary update to the Hue CIMPACT-DST since its initial deployment in June 2013. They added new custom-made flood maps for all districts of Thua Thien-Hue province in early 2014. This update allows for expanded tool use beyond the city of Hue.

In April 2014, HPI tool administrators expressed a desire to expand the Hue CIMPACT-DST beyond planners at HPI, to other users and institutions. HPI director Dr. Nam contended that such expansion would require official adoption and approval of the tool by the Provincial People's Committee. This request reflects the unique enforcement capacity of Vietnam, in which departmental activities must reflect official policy.

Support was granted after a meeting in July 2014, which culminated in an official document expressing support and approval from PPC for further tool customization and use (see Appendix E). PPC also made three requests in this document: 1) for HPI to work with Cascadia to expand CIMPACT-DST use, 2) for DONRE to provide and integrate climate change data into CIMPACT-DST, and 3) for DOC to consider using tool

outputs in review of urban plans. HPI expects that, with this approval and requests, HPI will have the capacity and support to continue maintaining and expanding Hue CIMPACT-DST use over time.



Cascadia and HPI presented Hue CIMPACT-DST and secured official approval for tool use and administration from the Thua Thien-Hue Provincial People's Committee.

4.2.4 FUTURE OUTLOOK

The Hue CIMPACT-DST project served as a pilot for directing the development of a broader national version of CIMPACT-DST, which was released in July 2014. Improvements to the national tool that were informed by the experience in Hue include the integration of page-specific source hyperlinks and report-friendly formatting. Although administrators of the Hue CIMPACT-DST could use this improved national version, HPI staff prefer to use the version of the tool that was originally customized for them, the pilot Hue CIMPACT-DST.

Urban planners from other provinces and cities interested in the national version of CIMPACT-DST look to the pilot tool in Hue for guidance and confirmation. During the national tool administrator training in Hanoi, representatives from VIUP, Ba Ria-Vung Tau, and Can Tho expressed strong interest in learning from HPI's experience. Hue tool administrators shared their experience using and updating CIMPACT-DST, and trainees took notes and exchanged contact information to share experiences, challenges, best practices, and information after the training.



Dr. Dang Minh Nam, HPI Director, presented the pilot Hue CIMPACT-DST at the national-level tool workshop

Planners at HPI ultimately hope to build on the climate information already embedded in the Hue CIMPACT-DST with additional locally tailored urban design and planning guidance, such as those put forth for Ho Chi Minh City in the *AdaptHCMC* report.³ The request by the Provincial People's Committee for additional climate data from DONRE could include such guidance information. HPI also requested further assistance in assessing adaptation options, such as through cost-benefit analysis. Outside the scope of CIMPACT-DST, such a pursuit would require support through another venue or project.



Future administrators of the national-level CIMPACT-DST learned from the experience of pilot tool administrators in Hue

³ Brandenburg University of Technology Department of Urban Planning and Spatial Design (2013). *AdaptHCMC: Guidelines on Climate Change Adapted Urban Planning and Design for Ho Chi Minh City/ Vietnam*.

4.3 LESSONS LEARNED AND RECOMMENDATIONS

The challenges, successes, and outcomes of this project revealed the following key lessons and recommendations:

- **Establish a shared understanding of potential uses.** Although the Hue CIMPACT-DST was originally designed for use only within the city, HPI creatively applied the tool to new urban master plans in coastal districts of Thua Thien-Hue province. Although this innovative approach worked well, we recommend arriving at a comprehensive shared understanding of all potential use scenarios prior to tool customization activities.
- **Tap local knowledge.** When faced with an overabundance of available climate studies yet an under-abundance of available spatial information, insight and review from local experts and leaders were crucial for prioritizing, ground-truthing, and amending the information for improved usefulness and dependability.
- **Establish and foster key relationships.** Establishing close collaborative relationships with local and respected climate experts and key stakeholder organizations was vital to generating accepted and locally relevant climate information as well as overall project support.
- **Secure buy-in.** Organization of a culminating project workshop promoted cross-departmental coordination and buy-in for the project, nurturing a sense of local ownership and inciting enthusiasm for the project.
- **Leverage existing processes and resources.** Instead of building a stakeholder group and review process from scratch, leveraging the relationships, processes, and momentum of an existing stakeholder group or process saved time and resources for both the project team and its stakeholders.
- **Make it official.** To legitimize the Hue CIMPACT-DST within the province, expand tool use, and garner support for its continued maintenance, HPI director Dr. Name contended that the Thua Thien-Hue Provincial People's Committee must officially adopt the tool. Achieving this official support served as a critical step towards sustained and distributed use of the Hue CIMPACT-DST in the province.
- **Get local.** Hue tool users were more willing to use and assume ownership of the tool that was customized just them, rather than an improved national-level version. Additionally, although the Hue CIMPACT-DST was populated with the most current and comprehensive climate reports available, planners at HPI continued to request information that is more tailored to Hue. With official local guidance and impact summaries, HPI director Dr. Nam explained, planners can be confident that the Provincial People's Committee, which reviews and approves all HPI plans, can accept tool-informed amendments to their planning projects. Actions to generate and integrate locally-generated and relevant information and tools should be pursued, where possible.
- **Think long-term.** Although the Hue CIMPACT-DST ultimately garnered long-term, sustainable support through official approval from the Provincial People's Committee, this achievement was not realized until almost a year after initial tool deployment. Earlier achievement may have resulted in increased tool use and support and a more diverse user base. Outlining clear plans and steps for sustained project outcomes early in the project can position the project for long-term success.

5. CONCLUSION

The observed successful deployment of the Hue CIMPACT-DST affirms the need and usefulness of such a tool in guiding climate-resilient urban planning in Vietnam. Official approval from the Provincial People’s Committee further demonstrates this value, as well as establishes a foundation for the sustainable use and management of the Hue CIMPACT-DST in the long term. Moreover, Vietnam’s unique enforcement capacity means that climate-resilient adjustments to urban plans will likely result in increased resilience on the ground.

The model demonstrated through this pilot project—customization of an established tool for a particular jurisdiction or context to inform local decision-making—appears ripe for replication to other areas or applications. However, preconditions for success should be considered in replicating these efforts, including relative enforcement capacity, the availability of existing information, presence of existing stakeholder groups, and identification of a project “champion” early in the process.



Tool champion Dr. Dang Minh Nam, whose organization is responsible for the tool’s maintenance and deployment, presented Hue CIMPACT-DST to city and provincial government staff at the project’s culminating workshop in June 2013.

APPENDIX A.

USE FEEDBACK FORM

HUE CIMPACT-DST USE FEEDBACK FORM (BLANK, ENGLISH)



August 2013

Hue CIMPACT-DST Initial Feedback Form

In an effort to continue to build support for the Hue CIMPACT-DST project and expand the use and applicability of the Tool, we are asking that you please answer the following questions after using the Tool for a particular project. This information will be critical in communicating to the funders at USAID the importance and long-term value of the Tool to improving resilience in Hue.

Please use this template as a guide, but also feel free to submit additional thoughts if you want, such as on the Tool's ease-of-use or areas for future improvement. When complete, please send your feedback to both Thu Tran (thu@cascadiaconsulting.com) and Andrea Martin (andream@cascadiaconsulting.com). Thank you!

1. For what project did you use the Tool? Please provide a brief description of the project, including detailed information about the project location:

2. How did the Tool help your project consider climate change? Please explain how the Tool was (or was not) helpful:

3. Before the Tool, did you consider or incorporate climate change impacts and/or adaptation practices guidance into your projects?

Yes No

4. Do you think your use of the Tool will change the way you approach, plan, or implement your projects?

Yes No

If so, how will you approach your projects differently? If not, why not?

HUE CIMPACT-DST USE FEEDBACK FORM #I (COMPLETED, VIETNAMESE)



Tháng Tám, 2013

Mẫu Đơn Phản Hồi Ban Đầu Cho Công Cụ Huế CIMPACT-DST

Để tiếp tục hỗ trợ cho dự án công cụ Huế CIMPACT-DST và mở rộng việc sử dụng cũng như tính ứng dụng của công cụ, chúng tôi hy vọng bạn trả lời các câu hỏi sau sau khi sử dụng công cụ cho một dự án cụ thể. Thông tin này sẽ rất quan trọng trong việc thông báo cho các nhà tài trợ dự án ở USAID về tầm quan trọng cũng như các giá trị lâu dài của công cụ trong quá trình nâng cao sức chống chịu với BĐKH ở Huế.

Mời bạn sử dụng mẫu đơn này và thêm bất cứ phản hồi/ý kiến nào nếu có, ví dụ về tính dễ sử dụng của công cụ hoặc các khả năng nâng cao tính năng của công cụ trong tương lai. Khi hoàn thành, mời bạn gửi phản hồi tới Thu Tran (thu@cascadiaconsulting.com) và Andrea Martin (andream@cascadiaconsulting.com). Xin cảm ơn!

1. Bạn đã sử dụng công cụ cho công trình/dự án nào? Xin cung cấp một mô tả ngắn gọn bao gồm thông tin chi tiết về vị trí của công trình/dự án:

Tên dự án: Quy hoạch chung đô thị mới Vinh Thanh
Vị trí: Xã Vinh Thanh, huyện Phú Vang, tỉnh Thừa Thiên Huế

2. Công cụ đã giúp công trình/dự án của bạn xem xét vấn đề BĐKH như thế nào? Xin giải thích cụ thể công cụ có ích (không có ích) như thế nào:

Mặc dù đồ án quy hoạch chung không nằm trong ranh giới thành phố Huế, nhưng chúng tôi vẫn áp dụng công cụ để có thêm dữ liệu cho việc thiết kế. Sau khi sử dụng, công cụ đã giúp chúng tôi nhìn nhận lại các giải pháp quy hoạch của đồ án và đề xuất các hướng xử lý tích cực hơn đối với môi trường đô thị như tăng thêm diện tích đất cây xanh, nông nghiệp, đưa ra các giải pháp bảo vệ cho các vùng ven đầm phá Tam Giang và vùng ven biển.... Ngoài ra, công cụ còn giúp cho chúng tôi đưa ra các khuyến cáo liên quan đến biến đổi khí hậu trong việc thực hiện quy hoạch và ảnh hưởng của đến biến đổi khí hậu đến đời sống của người dân (tại mục 4.6- đánh giá môi trường chiến lược của đồ án)

3. Trước khi có công cụ, bạn có xem xét hoặc bao gồm các ảnh hưởng của BĐKH và/hoặc các hướng dẫn về công tác thích nghi vào dự án/công trình của mình không?

Có Không

4. Bạn có nghĩ việc sử dụng công cụ sẽ thay đổi cách bạn tiếp cận, quy hoạch và thực hiện dự án/công trình của mình không?

Có Không

Nếu có, bạn sẽ tiếp cận các dự án/công trình khác trước như thế nào? Nếu không, vì sao?

Chúng tôi sẽ sử dụng công cụ vào các dự án tiếp theo của mình. Bởi vì đây là một trong những trợ giúp rất tốt cho chúng tôi trong việc đưa ra các giải pháp toàn diện có tính tới sự ảnh hưởng của biến đổi khí hậu. Đặc biệt đối với đặc thù công việc của HPI là thiết kế các đồ án quy hoạch, công cụ sẽ giúp chúng tôi nhìn nhận, đưa ra các định hướng phát triển bền vững hơn cho đô thị và bảo vệ được cuộc sống của người dân trước các tác động của biến đổi khí hậu.

HUE CIMPACT-DST USE FEEDBACK FORM #1 (COMPLETED, ENGLISH)



August 2013

Hue CIMPACT-DST Initial Feedback Form

In an effort to continue to build support for the Hue CIMPACT-DST project and expand the use and applicability of the Tool, we are asking that you please answer the following questions after using the Tool for a particular project. This information will be critical in communicating to the funders at USAID the importance and long-term value of the Tool to improving resilience in Hue.

Please use this template as a guide, but also feel free to submit additional thoughts if you want, such as on the Tool's ease-of-use or areas for future improvement. When complete, please send your feedback to both Thu Tran (thu@cascadiaconsulting.com) and Andrea Martin (andream@cascadiaconsulting.com). Thank you!

1. For what project did you use the Tool? Please provide a brief description of the project, including detailed information about the project location:

Project name: Vinh Thanh New Urban Area General/Master Planning
Location: Vinh Thanh Commune, Phu Vang District, Thua Thien-Hue Province

2. How did the Tool help your project consider climate change? Please explain how the Tool was (or was not) helpful:

Although this mater plan is not located within Hue City, we still applied the Tool to have more input for designing. The Tool really helped us evaluate different project planning solutions. recommended more sustainable solutions for urban environment such as increasing green spaces, and suggested solutions to protect Tam Giang lagoon and coastal areas.. In addition, the Tool also provided us with climate change recommendations in planning and info on different impacts of climate change on the local community (in section 4.6 - evaluating strategic environment of project)

3. Before the Tool, did you consider or incorporate climate change impacts and/or adaptation practices guidance into your projects?

Yes No

4. Do you think your use of the Tool will change the way you approach, plan, or implement your projects?

Yes No

If so, how will you approach your projects differently? If not, why not?

We will use this Tool in our other projects because it is very helpful for us in coming up with comprehensive solutions that consider climate change impacts. Especially when HPI's focus is to design plans, the Tool will help us consider and design more sustainable plans for urban areas and protect people's lives given the impacts of climate change.

HUE CIMPACT-DST USE FEEDBACK FORM #2 (COMPLETED, VIETNAMESE)



Tháng Tám, 2013

Mẫu Đơn Phản Hồi Ban Đầu Cho Công Cụ Huế CIMPACT-DST

Để tiếp tục hỗ trợ cho dự án công cụ Huế CIMPACT-DST và mở rộng việc sử dụng cũng như tính ứng dụng của công cụ, chúng tôi hy vọng bạn trả lời các câu hỏi sau sau khi sử dụng công cụ cho một dự án cụ thể. Thông tin này sẽ rất quan trọng trong việc thông báo cho các nhà tài trợ dự án ở USAID về tầm quan trọng cũng như các giá trị lâu dài của công cụ trong quá trình nâng cao sức chống chịu với BĐKH ở Huế.

Mời bạn sử dụng mẫu đơn này và thêm bất cứ phản hồi/ý kiến nào nếu có, ví dụ về tính dễ sử dụng của công cụ hoặc các khả năng nâng cao tính năng của công cụ trong tương lai. Khi hoàn thành, mời bạn gửi phản hồi tới Thu Tran (thu@cascadiaconsulting.com) và Andrea Martin (andream@cascadiaconsulting.com). Xin cảm ơn!

1. Bạn đã sử dụng công cụ cho công trình/dự án nào? Xin cung cấp một mô tả ngắn gọn bao gồm thông tin chi tiết về vị trí của công trình/dự án:

Được sử dụng trong quy hoạch chung Điện Biên, Ninh Kiều, Hiệp theo kế hoạch. Sử dụng trong quy hoạch chung jalong An..

2. Công cụ đã giúp công trình/dự án của bạn xem xét vấn đề BĐKH như thế nào? Xin giải thích cụ thể công cụ có ích (không có ích) như thế nào:

Công cụ là kết quả tích cực giúp cho như quy hoạch, chỉ đạo thực hiện các nhiệm vụ khác nhau, cũng như từ những kết quả đã có thể đưa ra quyết định.

3. Trước khi có công cụ, bạn có xem xét hoặc bao gồm các ảnh hưởng của BĐKH và/hoặc các hướng dẫn về công tác thích nghi vào dự án/công trình của mình không?

Có Không

4. Bạn có nghĩ việc sử dụng công cụ sẽ thay đổi cách bạn tiếp cận, quy hoạch và thực hiện dự án/lĩnh vực của mình không?

Có Không

Nếu có, bạn sẽ tiếp cận các dự án/công trình khác trước như thế nào? Nếu không, vì sao?

Giúp cho việc điều chỉnh, tiếp cận tốt hơn sự chú ý của BĐKH đến quy hoạch và các công trình mới. Công cụ này giúp chúng tôi dễ dàng thực hiện đưa ra những quyết định cũng như quyết định. Làm cho dự án, chỉ đạo thực hiện.

HUE CIMPACT-DST USE FEEDBACK FORM #2

(COMPLETED, ENGLISH)



August 2013

Hue CIMPACT-DST Initial Feedback Form

In an effort to continue to build support for the Hue CIMPACT-DST project and expand the use and applicability of the Tool, we are asking that you please answer the following questions after using the Tool for a particular project. This information will be critical in communicating to the funders at USAID the importance and long-term value of the Tool to improving resilience in Hue.

Please use this template as a guide, but also feel free to submit additional thoughts if you want, such as on the Tool's ease-of-use or areas for future improvement. When complete, please send your feedback to both Thu Tran (thu@cascadiaconsulting.com) and Andrea Martin (andream@cascadiaconsulting.com). Thank you!

1. For what project did you use the Tool? Please provide a brief description of the project, including detailed information about the project location:

Dien Loc Commune New Urban Area master plan; Phong An Commune New Urban Area master plan

2. How did the Tool help your project consider climate change? Please explain how the Tool was (or was not) helpful:

The Tool is useful for urban planners to easily compile recommendations/guidance and use them as evidence in their proposal.

3. Before the Tool, did you consider or incorporate climate change impacts and/or adaptation practices guidance into your projects?

Yes No

4. Do you think your use of the Tool will change the way you approach, plan, or implement your projects?

Yes No

If so, how will you approach your projects differently? If not, why not?

It provides a quick and easy access to climate change impacts and helps users gather recommendations/guidance in the decision making process.

HUE CIMPACT-DST USE FEEDBACK FORM #3 (COMPLETED, VIETNAMESE)



Tháng Tám, 2013

Mẫu Đơn Phản Hồi Ban Đầu Cho Công Cụ Huế CIMPACT-DST

Để tiếp tục hỗ trợ cho dự án công cụ Huế CIMPACT-DST và mở rộng việc sử dụng cũng như tính ứng dụng của công cụ, chúng tôi hy vọng bạn trả lời các câu hỏi sau sau khi sử dụng công cụ cho một dự án cụ thể. Thông tin này sẽ rất quan trọng trong việc thông báo cho các nhà tài trợ dự án ở USAID về tầm quan trọng cũng như các giá trị lâu dài của công cụ trong quá trình nâng cao sức chống chịu với BĐKH ở Huế.

Mời bạn sử dụng mẫu đơn này và thêm bất cứ phản hồi/ý kiến nào nếu có, ví dụ về tính dễ sử dụng của công cụ hoặc các khả năng nâng cao tính năng của công cụ trong tương lai. Khi hoàn thành, mời bạn gửi phản hồi tới Thu Tran (thu@cascadiaconsulting.com) và Andrea Martin (andream@cascadiaconsulting.com). Xin cảm ơn!

1. Bạn đã sử dụng công cụ cho công trình/dự án nào? Xin cung cấp một mô tả ngắn gọn bao gồm thông tin chi tiết về vị trí của công trình/dự án:

- Quy hoạch chung Đô thị mới Diên Lạc, huyện Phong Điền, phía Bắc thành phố Huế
- Quy hoạch chung Đô thị mới Phong An, huyện Phong Điền, phía Bắc thành phố Huế

2. Công cụ đã giúp công trình/dự án của bạn xem xét vấn đề BĐKH như thế nào? Xin giải thích cụ thể công cụ có ích (không có ích) như thế nào:

Công cụ có ích trong trong việc đưa ra các khuyến nghị về luật, các biện pháp tại các khu vực ven biển, khuyến nghị về xây dựng hệ thống công trình kỹ thuật, các độ bền và bố trí các khu dân cư.

3. Trước khi có công cụ, bạn có xem xét hoặc bao gồm các ảnh hưởng của BĐKH và/hoặc các hướng dẫn về công tác thích nghi vào dự án/công trình của mình không?

Có Không

4. Bạn có nghĩ việc sử dụng công cụ sẽ thay đổi cách bạn tiếp cận, quy hoạch và thực hiện dự án/công trình của mình không?

Có Không

Nếu có, bạn sẽ tiếp cận các dự án/công trình khác trước như thế nào? Nếu không, vì sao?

Thêm một yếu tố quan trọng trong việc đánh giá, lựa chọn đất xây dựng đô thị, đảm bảo phòng an quy hoạch tối ưu. Đảm bảo bố trí dân cư hợp lý, đề xuất quy mô hệ thống hạ tầng kỹ thuật phù hợp.

HUE CIMPACT-DST USE FEEDBACK FORM #3 (COMPLETED, ENGLISH)



August 2013

Hue CIMPACT-DST Initial Feedback Form

In an effort to continue to build support for the Hue CIMPACT-DST project and expand the use and applicability of the Tool, we are asking that you please answer the following questions after using the Tool for a particular project. This information will be critical in communicating to the funders at USAID the importance and long-term value of the Tool to improving resilience in Hue.

Please use this template as a guide, but also feel free to submit additional thoughts if you want, such as on the Tool's ease-of-use or areas for future improvement. When complete, please send your feedback to both Thu Tran (thu@cascadiaconsulting.com) and Andrea Martin (andream@cascadiaconsulting.com). Thank you!

1. For what project did you use the Tool? Please provide a brief description of the project, including detailed information about the project location:

Dien Loc Commune New Urban Area master plan; Phong An Commune New Urban Area master plan

2. How did the Tool help your project consider climate change? Please explain how the Tool was (or was not) helpful:

The Tool is useful in giving recommendations/guidance regarding flood and sea level rise in coastal areas, technical infrastructure system construction, and ground level as well as residential area assignment.

3. Before the Tool, did you consider or incorporate climate change impacts and/or adaptation practices guidance into your projects?

Yes No

4. Do you think your use of the Tool will change the way you approach, plan, or implement your projects?

Yes No

If so, how will you approach your projects differently? If not, why not?

This adds an important factor to the assessment and selection of urban construction land, guarantees the optimal planning method, guarantees suitable residential area assignment, and proposes a suitable technical infrastructure scope.

APPENDIX B.

UPDATE FEEDBACK FORM

HUE CIMPACT-DST UPDATE FEEDBACK FORM (BLANK, ENGLISH)



December 2013

Hue CIMPACT-DST UPDATE Feedback Form

In an effort to continue to build support for the Hue CIMPACT-DST project and expand the use and applicability of the Tool, we are asking that you please answer the following questions after using your Administrative privileges to update the Tool. This information will be critical in communicating to the funders at USAID the importance and long-term value of the Tool to improving resilience in Hue.

Please use this template as a guide, but also feel free to submit additional thoughts if you want, such as on the Tool's ease-of-use or areas for future improvement. When complete, please send your feedback to both Thu Tran (thu@cascadiaconsulting.com) and Andrea Martin (andream@cascadiaconsulting.com). Thank you!

1. What update(s) did you make to the Tool? Please provide a brief description of the update(s):

2. Please describe your experience updating the Tool. Was it easy or difficult? Did you encounter any roadblocks?

3. Did the Administrator Guide facilitate the update process?

Yes No

4. What changes could be made to the Tool or Administrator Guide to improve the updatability of the Tool?

HUE CIMPACT-DST UPDATE FEEDBACK FORM (COMPLETED, VIETNAMESE/ENGLISH)



Tháng Mười Hai, 2013

Mẫu Đơn Phản Hồi Về Việc Cập Nhật Công Cụ Huế CIMPACT-DST

Để tiếp tục hỗ trợ cho dự án công cụ Huế CIMPACT-DST và mở rộng việc sử dụng cũng như tính ứng dụng của công cụ, chúng tôi hy vọng bạn trả lời các câu hỏi sau sau khi cập nhật công cụ với tư cách là nhà quản lý công cụ. Thông tin này sẽ rất quan trọng trong việc thông báo cho các nhà tài trợ dự án ở USAID về tầm quan trọng cũng như các giá trị lâu dài của công cụ trong quá trình nâng cao sức chống chịu với ĐBKH ở Huế.

Mời bạn sử dụng mẫu đơn này và thêm bất cứ phản hồi/ý kiến nào nếu có, ví dụ về tính dễ sử dụng của công cụ hoặc các khả năng nâng cao tính năng của công cụ trong tương lai. Khi hoàn thành, mời bạn gửi phản hồi tới Thu Tran (thu@cascadiaconsulting.com) và Andrea Martin (andream@cascadiaconsulting.com). Xin cảm ơn!

1. Bạn đã thực hiện những cập nhật nào cho công cụ? Xin mời cung cấp một mô tả ngắn gọn về những cập nhật đó:

Việc cập nhật cũng khá hạn chế, chỉ thực hiện cập nhật như bản đồ ngập... The updates are pretty limited. So far we have done only the flood maps.

2. Xin mô tả kinh nghiệm cập nhật công cụ. Bạn thấy quá trình cập nhật đó dễ hay khó? Bạn có gặp phải khó khăn nào không?

Chưa gặp phải khó khăn nào khi cập nhật trong phạm vi cho phép. We haven't had any difficulties in updating.

3. Bạn thấy Hướng Dẫn Quản Lý Công Cụ có ích trong quá trình cập nhật công cụ không?

Có Không

4. Để nâng cao tính dễ cập nhật của công cụ, chúng tôi nên thực hiện những thay đổi nào cho Hướng Dẫn Sử Dụng Công Cụ và Hướng Dẫn Quản Lý Công Cụ?

Về hướng dẫn thì chi tiết, rõ ràng, dễ hiểu. The tool admin guide and user guide are detailed, clear, and easy to understand.

APPENDIX C.

ATTENDANCE LISTS

SMALL GROUP DISCUSSION ATTENDANCE LISTS

10/28/2014, 5 male attendees, 1 female attendee

No.	Title	Name	Position	Organization
1	Dr.	Dang Minh Nam	Director	HPI
2	Mr.	Dang Hoang Linh	Deputy Head	HPI, Planning Center
3	Mr.	Nguyen Cong Minh	Architect	HPI, Research Center
4	Mr.	Ngo Hai Binh	Head	HPI, Planning Center
5	Mr.	Nguyen Xuan Nghia	GIS Specialist	HPI
6	Ms.	Huynh Thi Tieu Quyen	Planner	HPI

4/28/2014, 10 male attendees, 2 female attendees

No.	Title	Name	Position	Organization
1	Mr.	Nguyen Viet Tien	Chairman	Thua Thien-Hue Urban Planning Association
2	Ms.	Ha Thi Mai Huong	Planner	Thua Thien-Hue Department of Construction (DOC)
3	Mr.	Le Thanh Dzung	Planner	Thua Thien-Hue DOC
4	Mr.	Nguyen Quang Phuc	Lecturer	Hue University, College of Economics
5	Mr.	Ngo Hai Binh	Deputy Head	HPI, Planning Center
6	Mr.	Nguyen Cong Minh	Architect	HPI, Research Center
7	Mr.	Nguyen Xuan Nghia	GIS Specialist	HPI
8	Mr.	Tran Van Giai Phong	Researcher	ISET
9	Mr.	Tran Quang Hieu	Urban Planner	HPI
10	Mr.	Bui Minh Hai	Architect	HPI
11	Ms.	Huynh Thi Tieu Quyen	Planner	HPI
12	Dr.	Dang Minh Nam	Director	HPI

CULMINATING WORKSHOP ATTENDANCE LIST

6/26/2013, 37 male attendees, 4 female attendees, from the following organizations:

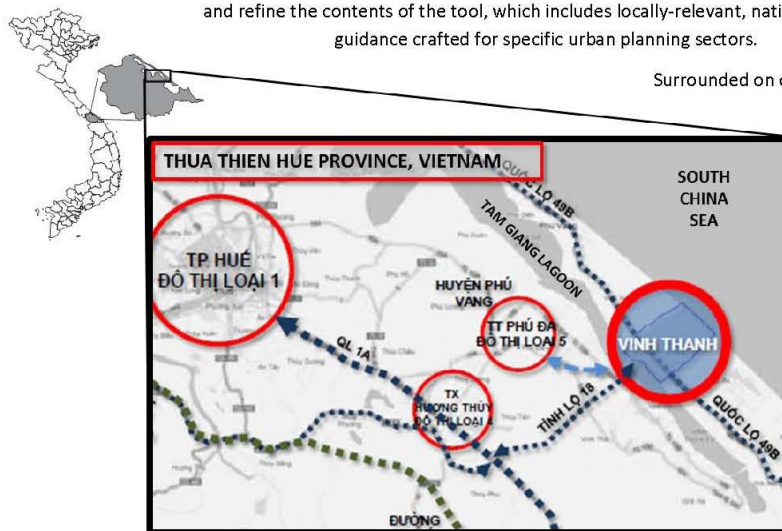
- Hue Planning Institute (HPI)
- Department of Natural Resources and Environment (DONRE)
- Board of Flood and Typhoon Prevention
- Association of Planning and Urban Development
- TRT Hue (TV News Station)
- Department of Planning and Investment
- Department of Architecture – Hue College of Sciences
- Thua Thien-Hue Newspaper
- Department of Agriculture and Rural Development (DARD)
- Hue Monuments Conservation Center
- Department of Construction (DOC)

APPENDIX D. CASE STUDIES

VINH THANH COMMUNE, PHU VANG DISTRICT

PROJECT INTRODUCTION

Planners at the Hue Planning Institute (HPI) used a custom-tailored version of Cascadia Consulting Group's *Climate Impacts Decision-Support Tool* (CIMPACT-DST) to integrate climate change considerations into the urban master planning process. Work on the tool customization and implementation is part of USAID's Climate Change Resilience Development (CCRD) program. The CIMPACT-DST tool provides a framework for identifying and evaluating projected climate change impacts and preferred adaptation solutions for urban planning projects. Cascadia worked closely with HPI and other local stakeholders to develop and refine the contents of the tool, which includes locally-relevant, nationally-accepted climate information, exposure assessment, and guidance crafted for specific urban planning sectors.



Surrounded on one side by the Tam Giang lagoon and on another by the East Sea, Vinh Thanh commune in the Phu Van district of Thua Thien Hue province is a rural commune dominated by agriculture, aquaculture, and fishing. The Provincial People's Committee commissioned HPI to develop the commune's first urban master plan in support of the province's socioeconomic goals for the area. The creation of the urban master plan also supports its ascendance to "township" status, which affords the commune new resources from the federal government.

The Vinh Thanh commune consists of residential areas along Highway 49, shrimp farms along the lagoon, and rice paddies in the inner low-lying area (see figure on the following page). The province's existing socioeconomic plan provides some foundational guidance for the commune's development, including a desired shift away from rice cultivation to more salt tolerant crops and an increase in eco-tourism and aquaculture.

"A couple of years ago, I would have never thought about climate change during the planning process. A workshop on climate change I attended last year changed my mind. Now the tool pushes me even further. Local stakeholders such as investors, residents, and local officials deeply care about what will happen to their communities in the future. The tool helps us as planners show them how climate change will affect their lands and infrastructure in 30, 50, and 70 years so that they can make good decisions."

Dr. Dang Minh Nam,
Director of the Hue Planning
Institute

A CLIMATE-RESILIENT URBAN MASTER PLAN

Using the provincial socioeconomic plan as a basis, HPI fashioned an urban master plan that features strategic delineation of tourism, industrial, agricultural, and residential zones. Acknowledging that the spatial arrangement and characterization of these zones will carry important implications for the commune’s climate resilience, HPI used the CIMPACT-DST tool to inform their urban design and decision-making process. Specifically, HPI’s use of the tool resulted in three key planning changes: 1) a residential zoning shift, 2) an emphasis on low-impact coastal tourism development, and 3) preservation of drainage-conducive agricultural zones.

“[The tool] is very useful in the planning process. We could enter the exact location and have the specific impacts and guidelines for this project.”

Dang Hoang Linh,
Urban Planner at the Hue Planning Institute

PLANNING CHANGE #1: RESIDENTIAL ZONING

In the absence of the tool, HPI noted that they would have located Vinh Thanh’s residential zones close to the coastline and Tam Giang lagoon. By using CIMPACT-DST, planners identified the risks of locating residents adjacent to shorelines subjected to rising seas and increasing storm surges. To minimize the commune’s risks to climate change, the Institute decided to concentrate residential development farther inland, where residents and their homes will be more protected from destructive storms and typhoons. This repositioning will not only minimize the threat of human injury and infrastructure damage, but will also lower local government administrative costs for emergency warning and evacuation.

PLANNING CHANGE #2:

COASTAL TOURISM

The beautiful beaches of Vinh Thanh make it an attractive target for tourism development. Traditionally, such areas would be slated for rows of beachfront resorts and restaurants. But by using CIMPACT-DST, the planners understood the risks in locating such costly and vital infrastructure along highly exposed areas, and instead crafted another solution. Heeding the tool’s advice to maintain natural coastlines and integrate green space into coastal areas to mitigate storm surge and protect those living inland, HPI decided to dedicate much of the commune’s coastline areas to tourist beach huts and small restaurants, with minimal large-scale resort and hotel infrastructure. This strategic decision will realize many benefits for the commune as it develops into a township, including enhancement of tourism activity, safeguarding of vital infrastructure, and preservation of the beach’s protective dunes and sands. These protections will ensure that tourists and residents can enjoy the beach and all it has to offer for years to come.



PLANNING CHANGE #3:

DRAINAGE-CONDUCTIVE AGRICULTURE

The low-lying area between the commune’s lagoon and coast is currently dominated by rice paddies. Periodic salinity intrusion has inhibited healthy rice production in this area, and it is for this reason the socioeconomic plan calls for a transition from rice cultivation to other crops. Due to the area’s limited agricultural productivity and considerable aesthetic beauty, HPI initially considered substantial tourism infrastructure development in this area. However, guidance from the tool suggested that low-lying areas are best kept as green space, as it provides an important drainage pathway and allows for infiltration and stormwater storage during major precipitation events or unusually high tides (and over time, sea level rise). Given this advice, HPI decided to preserve this low-lying area for ponds, lakes, and agricultural production of salinity-resistant crops. This decision will reduce the flood risk for future infrastructure and allow for enhanced stormwater drainage for the entire surrounding area as it develops into a township.

VINH HIEN COMMUNE, PHU LOC DISTRICT

Vinh Hien Commune is surrounded by the East Sea to the North, Cau Hai lagoon to the South, Tu Hien estuary to the East, and Vinh Giang-Vinh Hai communes to the West. The Provincial People's Committee commissioned HPI to develop the commune's first urban master plan in support of the province's socio-economic goals for the area. The creation of the urban master plan also supports its ascendance to Class V urban area status, which affords the commune new resources from the provincial government.

Vinh Hien currently includes residential areas along Cau Hai Lagoon and near Tuy Van Mountain, shrimp farms along the lagoon, and rice paddies inland. The province's socioeconomic plan provides some guidance for the commune's development, including a focus on developing tourism and aquaculture. With these development goals in mind, HPI used the tool to create a more climate-resilient master plan for the commune, including two primary adjustments:



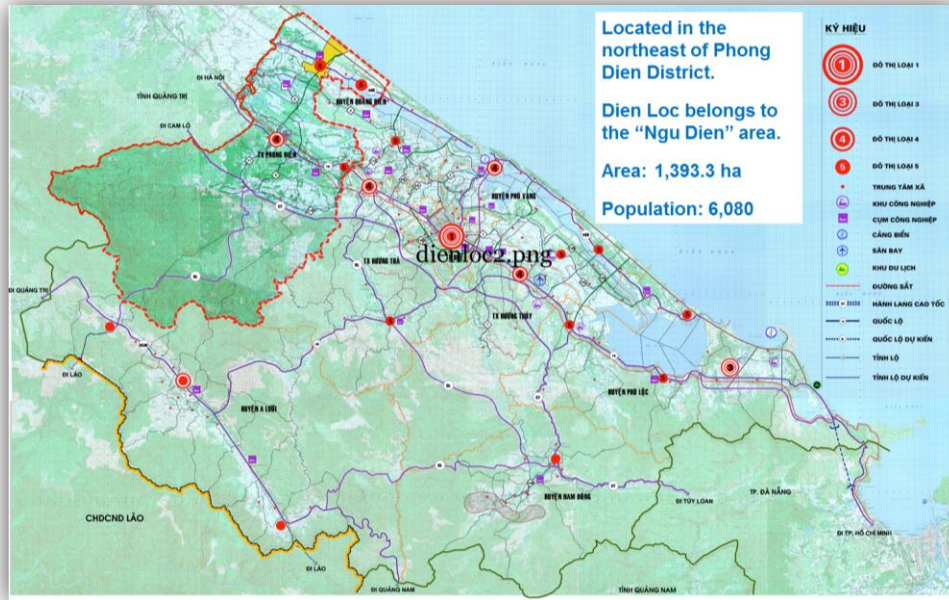
The project team walked Vinh Hien commune's current commercial and residential core area with HPI staff. Vinh Hien's new master plan is one of the plans to which the Hue CIMPACT-DST has been applied to inform climate-resilient design and spatial orientation.

- **Residential Zoning:** Without the tool, HPI would have located the commune's residential zones close to existing residential structures along the lagoon. Using the tool helped HPI staff identify the risks of locating residential areas adjacent to shores subjected to increasing flooding. To minimize the commune's risks to climate change, HPI decided to shift residential development further inland where homes will be more protected from flooding and storm surges. Instead of residential units, HPI plans to concentrate shrimp farms along the lagoon, as stipulated by the province's socioeconomic plan.
- **Coastal Tourism:** Normally, HPI plans for beachfront resorts and hotels near scenic coastal areas. However, by using the tool, HPI planners understood the risks of sea level rise and storm surges to such infrastructures. They decided to keep a large green space in this coastal area and dedicate much of the coastline to tourist beach huts and small restaurants.

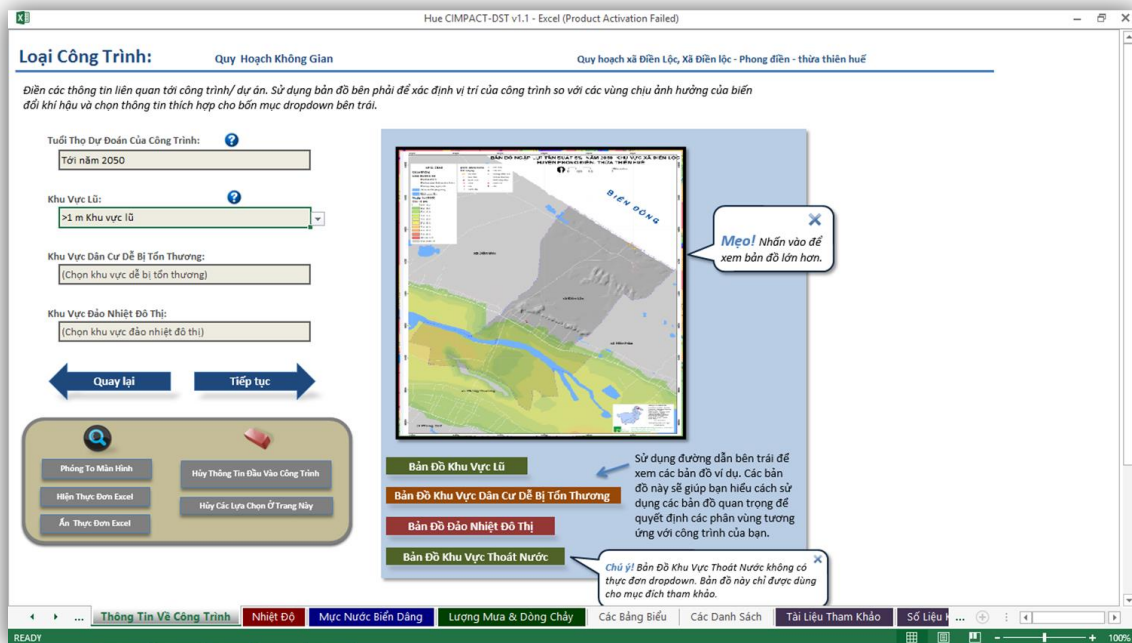
These strategic decisions by HPI will realize many benefits for the commune as it develops into a township in a more resilient manner.

DIEN LOC COMMUNE, PHONG DIEN DISTRICT

HPI used the Hue CIMPACT-DST in building a new urban master plan for Dien Loc commune.



The new climate-resilient urban master plan for Dien Loc commune



Screenshot of tool use to inform the development of a new urban master plan for Dien Loc commune

APPENDIX E. PROVINCIAL PEOPLE'S COMMITTEE APPROVAL

PPC APPROVAL DOCUMENT (ORIGINAL, VIETNAMESE)

*Sưu chụp? - VTQ
- P. MC K. ngoài.
- hieu VT.*

ỦY BAN NHÂN DÂN
TỈNH THỪA THIÊN HUẾ
Số: 219/TB-UBND

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc
Thừa Thiên Huế, ngày 31 tháng 7 năm 2014

**VĂN PHÒNG QUẢN LÝ VÀ XÂY DỰNG
THỪA THIÊN HUẾ
CÔNG VĂN ĐẾN**
Số: 220
Ngày 1 tháng 8 năm 2014

THÔNG BÁO
Kết luận của đồng chí Phan Ngọc Thọ - Phó Chủ tịch Ủy ban Nhân dân tỉnh tại buổi họp nghe báo cáo về ứng dụng “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam”

Ngày 29 tháng 07 năm 2014, tại Văn phòng Ủy ban Nhân dân tỉnh, đồng chí Phan Ngọc Thọ - Phó Chủ tịch Ủy ban Nhân dân tỉnh đã chủ trì nghe báo cáo tiếp và làm việc với bà Andrea Martin-tổ chức Cascadia-Hoa Kỳ làm việc về “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam.”

Tham dự buổi họp có Lãnh đạo các Sở, ngành: Xây dựng, Tài nguyên và Môi trường, Ngoại vụ, Kế hoạch và Đầu tư, Viện Quy hoạch và Xây dựng tỉnh.

Sau khi nghe đại diện đại diện tổ chức Cascadia-Hoa Kỳ và Viện Quy hoạch và Xây dựng tỉnh báo cáo tình hình triển khai ban đầu “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam” và các ý kiến của thành viên dự họp, đồng chí Phan Ngọc Thọ - Phó Chủ tịch Ủy ban Nhân dân tỉnh kết luận như sau:

1. Ủy ban Nhân dân tỉnh đánh giá cao sự hợp tác của tổ chức Cascadia trong việc hỗ trợ Viện Quy hoạch và Xây dựng tỉnh hình thành và phát triển “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam”. Việc áp dụng “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam” sẽ hỗ trợ tích cực trong việc lập các quy hoạch kinh tế-xã hội, quy hoạch đô thị, xây dựng tại các địa phương của tỉnh Thừa Thiên Huế và có thể triển khai áp dụng rộng rãi tại các địa phương khác.
2. Để có thể tiếp tục triển khai ứng dụng tốt “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam”, Ủy ban Nhân dân tỉnh yêu cầu:
 - Viện Quy hoạch và Xây dựng tỉnh chủ trì phối hợp với tổ chức Cascadia-Hoa Kỳ khẩn trương hoàn thiện hệ thống dữ liệu và các yếu tố pháp lý liên quan đến “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam” nhằm phục vụ công tác quy hoạch xây dựng và đô thị để triển khai áp dụng.

- Sở Tài nguyên và Môi trường có trách nhiệm chỉ đạo, cung cấp thông tin, thông số đầu vào về biến đổi khí hậu trên địa bàn toàn tỉnh; định kỳ thực hiện việc cập nhật vào “Bộ công cụ hỗ trợ quyết định về quy hoạch đô thị thích ứng với biến đổi khí hậu tại Việt Nam”.

- Sở Xây dựng xem xét sử dụng các ứng dụng của Bộ công cụ nhằm phục vụ công tác thẩm định các hồ sơ quy hoạch đô thị có tính đến yếu tố tác động của biến đổi khí hậu theo quy định.

Ủy ban Nhân dân tỉnh thông báo kết luận của đồng chí Phó Chủ tịch Ủy ban Nhân dân tỉnh đề các cơ quan, đơn vị biết, triển khai thực hiện./.

Nơi nhận:

- Các đơn vị dự họp;
- CT, các PCT UBND tỉnh;
- VP tổ chức Cascadia;
- VP: CVP, PCVP: Đ.N.Trần;
- Lưu: VT, TH, XD, ĐN. .

TL. CHỦ TỊCH
KT. CHÁNH VĂN PHÒNG
PHÓ CHÁNH VĂN PHÒNG



Đặng Ngọc Trân

PPC APPROVAL DOCUMENT (ENGLISH TRANSLATION)

Notice

People's Committee Vice Chairman, Mr. Phan Ngoc Tho's Conclusion at Meeting on Application of CIMPACT-DST in Thua Thien-Hue

On July 29, 2014, at the Provincial People's Committee, Mr. Phan Ngoc Tho, the People's Committee Vice Chairman, chaired the work meeting with Ms. Andrea Martin, Cascadia Consulting Group, Inc., work on the CIMPACT-DST application in Vietnam.

At the meeting were leaders from such departments as Construction, Natural Resources and Environment, External Affairs, Planning and Investment, and Thua Thien-Hue Planning Institute (HPI).

After hearing Cascadia and HPI report on the pilot application of the CIMPACT-DST in the province and feedback from meeting participants, Mr. Phan Ngoc Tho had these conclusions:

1. The Provincial People's Committee thinks very highly of Cascadia's collaboration with and support for HPI during the development and application of the Tool. The use of CIMPACT-DST will be helpful in the socio-economic and urban planning processes in Thua Thien-Hue's different jurisdictions. The Tool should be used widely in other provinces.
2. In order to implement the Tool, the People's Committee requests:
 - HPI to continue collaborating with Cascadia to improve the database and legal framework regarding the CIMPACT-DST to use it more widely in planning activities;
 - DONRE to provide local climate change data and integrate this data into the Tool periodically;
 - DOC to consider using the Tool output in reviewing of climate-resilient urban plans.

The People's Committee informs these conclusions from the Vice Chairman so that these above agencies are responsible for implementing these steps.

U.S. Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: (202) 712-0000

Fax: (202) 216-3524

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