

INSTITUTE FOR SOCIAL AND ENVIRONMENTAL TRANSITION-INTERNATIONAL CLIMATE RESILIENCE CASE STUDY

Can Tho, Vietnam

PROGRAM OVERVIEW

2011–2015 | Lead Partners: Can Tho People's Committee, Can Tho Climate Change Coordination Office(CCCO), Can Tho Climate change Steering Committee, Can Tho University, Challenge to Change (CtC) National Institute for Science and Technology Policy and Strategy Studies (NISTPASS), ISET-Vietnam



Traditionally a center of agriculture, forestry and fishery, the Can Tho economy is increasingly moving toward commerce, service, and construction. It is the fifth-largest city in Vietnam and growing rapidly.

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VULNERABILITY & RISK OVERVIEW



SYSTEMS

Increased flooding from sea level rise, increased drought and salinization from changes in precipitation timing and intensity, and increasing temperatures will stress both urban, and ecosystems in the delta. Water supply, transportation systems, and public works, as well as private property and productive assets like homes, agriculture and aquaculture will all be put at increasing risk.



AGENTS

Health risks and inundation from river flooding and river tides puts stress on poor households, particularly mothers and children, and threatens income-generating opportunities. Risks are heightened for unregistered migrant workers who lack access to public services, are ineligible for disaster compensation under government programs, and suffer from livelihood insecurity.



INSTITUTIONS

Climate change is a new and poorly understood challenge within City Government, and has not yet been integrated into City planning mechanisms despite strong interest on behalf of the local government. Most plans are developed without strong public participation and coordination between agencies. There is a lack of adequate or accessible information on environmental impacts, urbanization trends or climate change to enable sound public planning or household and private sector investment decisions.



EXPOSURE

Climate projections suggest higher temperatures, higher variability in precipitation (unpredictable and intense wet seasons, as well as occasional prolonged drought), a possible increase in typhoons as storm tracks shift, and sea level rise. The Mekong Delta will be strongly impacted by these changes, exacerbated by upstream dam development on the Mekong and other major rivers.

For more information about The Climate Resilience Framework, please visit: www.i-s-e-t.org/CRF

Summary

This document describes how stakeholders in the city of Can Tho, Vietnam are taking action to build resilience of physical systems, agents, and institutions in the face of rapid urban change and a changing climate. With support from the Asian Cities Climate Change Resilience Network (ACCCRN) program, stakeholders are working to:

- understand how vulnerabilities result from, and may be exacerbated by climate change and urbanization, in order to
- plan for resilience building activities;
- establish a Climate Change Coordination Office (CCCCO) within the city government;
- enhance city resilience to salinization of surface water;
- research and identify key risk factors for Dengue Fever, with the aim of finding targets for intervention; and
- Develop practical mechanisms for community-based flood and erosion management.

Can Tho City lies at the heart of the Mekong Delta. It is the fifth-largest city in Vietnam and growing rapidly. Traditionally a center of agriculture, forestry and fishery, the Can Tho economy is increasingly moving toward commerce, service, and construction. Yet Can Tho's exposure to the physical environment is inescapable. The modern city center in Ninh Kieu District floods regularly when monsoon-driven waters swell the Mekong to bank-full conditions. Ninh Kieu is home to administrative buildings, domestic housing, commercial banks, higher education institutes, hospitals, supermarkets, and communication stations. Outlying areas, criss-crossed by a dense system of rivers and canals, experience more intense flooding. Sea level rise is poised to exacerbate these risks.

Low water levels are beginning to pose equal challenges. There is concern that in the coming decades, saline encroachment, driven by a combination of higher sea levels, increasing upstream water withdrawals, and extended dry seasons will impact the city's municipal water supply. Exposure to other climate related hazards is also increasing. Changing storm tracks are bringing typhoons to southern Vietnam in an increasing number; temperatures are rising, posing threats to urban populations, agriculture, and aquaculture alike; and vector-borne diseases appear to be on the rise.

Through ACCCRN, ISET-Vietnam, the National Institute for Science and Technology Policy and Strategic Studies (NISTPASS), and Challenge to Change have supported a diverse stakeholder group in Can Tho to understand the linked challenges of climate change and urbanization, to plan strategically, and to implement key priority interventions to build resilience. This process has engaged local actors from the provincial to community level, including the People's Committee, government departments, mass organizations, non-government organizations, and academic institutions.

In 2009, stakeholders embarked on a process of shared learning for resilience planning, which included:

- **participatory shared learning dialogues (SLDs)**, call together stakeholders and experts from a variety of backgrounds to understand more about climate risks, exchange research and experiences related to the city's vulnerability, and to deliberate on next steps;
- **vulnerability assessments**, with a focus on climate impacts on poor and vulnerable households;
- **pilot projects** to engage local community members by testing their innovative ideas for building resilience;
- **sector studies** to provide in-depth analysis on priority issues;
- **development of a City Climate Resilience Action Plan**, led

by a local Climate Change Working Group, to analyze and prioritize interventions for building urban resilience; and

- **ongoing implementation of priorities** are identified in the City Climate Resilience Strategy, as described in the box below.

The City Climate Resilience Action Plan

A City Climate Resilience Action Plan is a broad local-level guidance document that provides the context, evidence, and analysis to justify and prioritize actions to strengthen urban resilience to climate change. It is a living document, granting platform for planners and other stakeholders to revise based on new learning and discussions. In Can Tho, the ACCCRN-supported Action Plan has informed the city's official Action Plan to Respond to Climate Change, which has been approved by the Ministry of Environment and Natural Resources. The action plan prioritizes further identification of climate impacts for groups, sectors and areas, integrating climate change into approved programs, enhancing preventative health system to respond to climate change, raising awareness and capacities of communities, and establishing a climate change data base.

Through ACCCRN, the Rockefeller Foundation is supporting Can Tho and ISET-International to implement a number of priority actions. These actions were developed by the Climate Change Working Group; the team developed resilience responses, prioritized them using qualitative cost-benefit analysis and multi-criteria analysis, and included them in the Can Tho Climate Resilience Action Plan. In this Climate Resilience Case Study, we explore how we are:

- establishing new coordination and management mechanisms (Climate Change Coordination Office);
- developing a real-time salinity monitoring network linked to public warning systems (Enhancing city resilience to saline intrusion);
- participatory research and intervention on dengue fever; and
- developing new mechanisms for joint management and protection of riverbanks and restoration of drainage channels (Community-based urban flood and erosion management).

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CLIMATE RESILIENCE CASE STUDY

Can Tho, Vietnam

CLIMATE CHANGE COORDINATION OFFICE

2011–2014 | Partners: Can Tho People's Committee, Can Tho Climate Change Steering Committee, ISET-Vietnam, NISTPASS, CtC



Can Tho CCCO's independence from any single government department enables it to coordinate effectively between different departments and stakeholder groups.



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CONTRIBUTIONS TO URBAN CLIMATE RESILIENCE

AGENTS

The CCCO is helping to raise the level of knowledge and awareness of climate change within the city government; working to increase capacity of technical staff who serve on the interdepartmental Climate Change Working Group; and is using ongoing Shared Learning Dialogues to facilitate learning and exchange between city stakeholders.

INSTITUTIONS

The quality, access, and application of information is improved through CCCO coordination of detailed, focused studies among government departments, establishment of a database, and guidance for integrating climate change into planning. Planning and decision-making are made more transparent and accountable through participatory planning with communities in vulnerable wards.

For more information about our conceptual framework, The Climate Resilience Framework, please visit: www.i-s-e-t.org/CRF

Summary

During initial development of their Climate Resilience Action Plans, all three Vietnamese ACCCRN cities—Da Nang, Can Tho, and Quy Nhon—arrived at similar conclusions about institutional vulnerability in their cities. The lack of effective mechanisms for coordination and harmonization of efforts across government departments, scales of government, and non-governmental actors presented a major barrier to building resilience. This responds to a major theme from resilience thinking: the need for social learning and working together between stakeholders in the same system. Local partners identified an ongoing need for local government to undertake informed, climate responsive planning and decision-making, and to implement the National Target Program on climate change (NTP).

With support from ACCCRN and the Can Tho People's Committee, a Climate Change Coordination Office (CCCO) was established in 2011 (with similar offices established in Quy Nhon and Da Nang). The CCCO is now fully operational and responsible

for developing and coordinating all climate change adaptation and mitigation projects in the city in collaboration with external agencies and local stakeholders. Under the authority of the city's Climate Change Steering Committee (CCSC), the office plays a variety of roles and uses a variety of mechanisms for promoting better coordination, collaboration, planning and investment for Climate Change.

Under its mandate from CCSC and grant from the Rockefeller Foundation, the CCCO is authorized to develop official climate change action plans under the central government's National Program to Respond to Climate Change; oversee implementation of ACCCRN City Resilience Action Plan; coordinate climate change resilience analysis for relevant city/provincial departments; develop a database to facilitate relevant data access across city agencies; provide guidance to Socio-Economic Development Planning and urban master planning at the city level; strengthen capacities and participation of vulnerable communities in climate resilience planning and decision-making; build awareness of climate challenges

and responses among city government and enhance capacity of key departmental staff; engage relevant local departments in assessing climate vulnerabilities and responses through targeted studies; develop indicators in collaboration with relevant departments and agencies to monitor city resilience; and promote ongoing dialogue among city stakeholders through shared learning dialogues.

Our Approach

Since its inception, the Can Tho CCCO has coordinated:

- development of a short term (2010–2015) Action Plan to Respond to Climate Change, which is now being used to guide implementation with support from ACCCRN and city budget, and ongoing development of a long-term action plan in collaboration with the Department of Natural Resources and Environment;
- development of a climate change information database, including population, climatic, and socioeconomic data, for access by government agencies in Can Tho;
- support for Department of Health, Department of Agriculture and Rural Development, and Department for Natural Resources and Environment to use climate data in their climate-related activities;
- oversight for implementation of the short-term action plan, including support for development of ACCCRN projects: salinity monitoring in Can Tho City, participatory research on dengue fever, and community-based flood and river management in Ninh Kieu district;
- facilitating data access for research on climate change in Can Tho and the Mekong Delta by external researchers, such as World Bank, Commonwealth Scientific and Industrial Research Office, and university graduate students;
- support for the Department of Construction to develop a climate change action plan and to Ninh Kieu District to mainstream climate change into its socio-economic development plan;
- in partnership with Challenge to Change, engaging local officials and community members in participatory planning in An Binh ward and Thoi An Dong ward. In An Binh, participatory planning activities gave local officials and local residents the idea to initiate a community-based management scheme to restore the riverside and manage flooding. This project is now being supported with funding from ACCCRN;

- enhancing general knowledge of climate change and national climate policies and integrating these into the planning of Can Tho for 700 city, district, and ward level staff in 9 districts, representatives of Can Tho, and members of the local media;
- training and mentorship for the Department of Labor, Invalids and Social Affairs, Department of Health, and local water supply companies to develop and track “resilience indicators” for resettlement, public health, and water supply. Teams have agreed on indicators, collected baseline data, and consulted with additional departments to share and elicit feedback on their findings; and
- support for the Can Tho Institute for Socio-Economic Development to undertake an assessment of poverty and vulnerability in Can Tho.

Lessons and Learning

- **In Can Tho, the CCCO envisions becoming a regional hub for information, learning, and action on climate change in the Mekong Delta.** Leaders hope to establish an Information Centre and climate change dialogue forum for the Mekong delta based in Can Tho.
- **Can Tho CCCO’s independence from any single government department enables it to coordinate effectively between different departments and stakeholder groups.** In Vietnam, as in many countries, existing institutional structures and incentives often encourage agencies to work, plan, and control resources independently. In Can Tho, the full-time director of the CCCO, Mr. Ky Quang Vinh, reports to the CCSC, rather than a departmental leader.
- **Soft skills are needed for climate resilience practice.** Experience suggests that “soft skills” like facilitation, networking, and partnership building are even more important than technical skills, particularly for institutions charged with coordinating across multiple sectors. The CCCO in Can Tho has employed a flexible staffing system that helps to engage individuals with diverse skills sets, by pulling them in from other departments or academic institutions on a part-time basis.
- **For participatory planning to be effective, it demands an attention to “access rights” as stated in the Rio Declaration on Environment and Development (1992).** These rights have been adopted in Vietnamese national law but are often poorly applied in practice. The Can Tho CCCO is actively working to incorporate these rights in office projects via participatory planning approaches.

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INSTITUTE FOR SOCIAL AND ENVIRONMENTAL TRANSITION-INTERNATIONAL
 CLIMATE RESILIENCE CASE STUDY

Can Tho, Vietnam

PARTICIPATORY RESEARCH ON DENGUE FEVER IN THE CONTEXT OF CLIMATE CHANGE

2012–2014 | Partner: Can Tho CCCO, Can Tho City Department of Health, Preventive Health Center of Can Tho City, Can Tho University of Medicine and Pharmacy, Can Tho Medical College, ISET-Vietnam, CtC



CONTRIBUTION TO URBAN CLIMATE RESILIENCE



SYSTEMS

Identifying interventions for reducing dengue fever risk, such as modifying household water storage methods in the dry season and improving early detection of outbreaks.



AGENTS

Enhancing awareness among vulnerable peoples to take preventative measures and better respond to outbreaks of dengue fever.



INSTITUTIONS

Strengthening the existing knowledge base about dengue fever and linkages to climate variability; improving the capacity of Can Tho health systems to prevent and respond to dengue fever; improving access to information and services about outbreaks

For more information about The Climate Resilience Framework, please visit: www.i-s-e-t.org/CRF

Summary

The incidence of dengue fever has increased dramatically since the 1960s, with around 50–100 million people infected yearly worldwide. Dengue fever is a virus borne infectious disease transmitted by several species of mosquito. Since there is no vaccine, reducing mosquito habitat and human exposure (“vector control” or “vector prevention”) are the principle means of prevention.

In Can Tho, health agencies have seen an increase in incidence and severity of dengue fever outbreaks in recent years, despite efforts and investments in prevention and control. These outbreaks have begun to occur in both the rainy and dry season, most frequently in low-income areas with poor living conditions and polluted environments.

According to epidemiologists, the increase in dengue incidence and severity is related to many factors including urbanization, increasing migration from rural to urban areas, habitat pollution, floods, and climate factors such as temperature, rainfall, and humidity. Yet Can Tho’s current preventative health measures are still reactive, and have not considered outbreaks caused by climate change impacts or migration issues.

The risk that dengue fever risk might increase as a result of climate change has been a concern for Can Tho health officials and researchers, who have taken the initiative to expand their understanding through ACCCRN. A research team led by the Can Tho Department of Health is conducting a three-pronged research study aimed at:

- **Assessing correlation between dengue incidence and climate change factors:** Through a desk-based study, researchers are using historical data on dengue fever in Can Tho and climate change to assess the linkages between climate change factors, development of mosquitoes, and dengue fever incidence and mortality.
- **Understanding the influence of weather on dengue entomological indices (presence of mosquito and larvae) and behaviors of local households:** This field study is assessing the linkages between weather, household practices, and dengue risk factors. From July 2012–2013, researchers are surveying a control group and experimental group in 6 vulnerable wards to detect mosquito larvae and pupae, interviewing households



Visit Children's Hospital in Can Tho on Dengue Fever

© Viet Nguyen, Dengue Fever project, 2012

about vector avoidance behaviors (such as using repellent or using fish to kill larvae), and observing water containers and house construction (such as roof type, use of fan/air conditioning, presence of a garden, etc.).

- **Assessing attitudes towards dengue and barriers to vector control as they relate to climate change:** Through focus groups and in-depth interviews with city leaders and members of dengue-vulnerable communities, the team aims to understand why current vector control practice is poor and the possible effect of climate change on behaviors that may promote or reduce dengue, including city planning.

The study phase commenced in 2012, with a baseline survey of 600 households already complete and an ongoing survey of 400 households every two months. The research team has interviewed officials from the Department of Health, the District People's Committee, and residents of four vulnerable wards, including poor women, unemployed individuals, farmers, street vendors, migrants, and households located on the riverbanks, completing a draft report on perception of climate change and dengue fever and strategies for interventions.

The study phase of the project is aimed at supporting the team to identify key risk factors to predict the kind of changes that may occur due to climate change. Armed with such an understanding,

the team will work to develop targeted awareness raising programs for local officials and households, as well as pilot models for dengue fever detection, prevention, and response in vulnerable communities. These pilots are expected to begin with ACCCRN support in late 2013. They are likely to include models for surveillance and monitoring and interventions to improve access to health services.

Research itself presents an opportunity for changing practices and attitudes

Through surveys, researchers can raise awareness among vulnerable households about dengue risk and preventative behaviors. This has already occurred among the 400 households that are regularly surveyed. Since the first survey, researchers have observed improved practices (emptying used water receptacles, covering drinking water receptacles or cleaning water retainers outside of the house) and a reduced presence of epidemiological indices. However, this participatory research approach initially presented a challenge for local researchers, who are familiar with conventional data collection methods. It required special training to help them communicate the purpose of their work and to educate households.

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Can Tho, Vietnam

REAL-TIME MONITORING FOR RESPONDING TO SALINE INTRUSION

2012–2014 | Partners: Can Tho CCCO, Center for Natural Resources and Environment Monitoring (CENRM) of Can Tho City, Can Tho Software Park, Department of Agriculture and Rural Development (DARD), Can Tho television stations, DRAGON Institute of Can Tho University, ISET-Vietnam



Installing position of Salinity
Measuring Equipment



© Sen La, Salinity project, 2012

CONTRIBUTIONS TO URBAN CLIMATE RESILIENCE



SYSTEMS

Developing a real-time network of salinity monitoring stations linked to public warning systems via salinity maps published on public website, SMS alert system, and news on local media.



AGENTS

Providing information to Can Tho households reliant on surface water; public official charged with designing, installing, and maintaining salinity-sensitive infrastructure; and water utility managers.



INSTITUTIONS

Identifying saline intrusion thresholds and potential responsive actions as a guideline for local people and decision-makers to develop plans and organize responses.

For more information about The Climate Resilience Framework, please visit: www.i-s-e-t.org/CRF

Summary

Can Tho City, lying at the heart of the Vietnamese Mekong Delta, is crossed by canals and waterways that are the primary source of water in the city. The Can Tho municipal piped water supply draws from surface water and as many as two thirds of all Can Tho households use surface river water directly for drinking, cooking and other domestic uses. Farmers use river water to irrigate rice, fruit and vegetable crops. Freshwater aquaculture is a common livelihood in rural areas of Can Tho. All of these activities are highly sensitive to salinity.

Located more than 65 km from the sea, and with year-round, unimpeded flow from the north, the waters surrounding Can Tho have remained fresh. There are indications that this may change in the coming decades, however. Recent detection of inland salinity in recent years suggest that the city's surface water system may be threatened by saline intrusion as a result of sea level rise and changing Mekong river flow.

Saline intrusion would have a major impact on the livelihood and health of Can Tho people, especially the poor who have limited

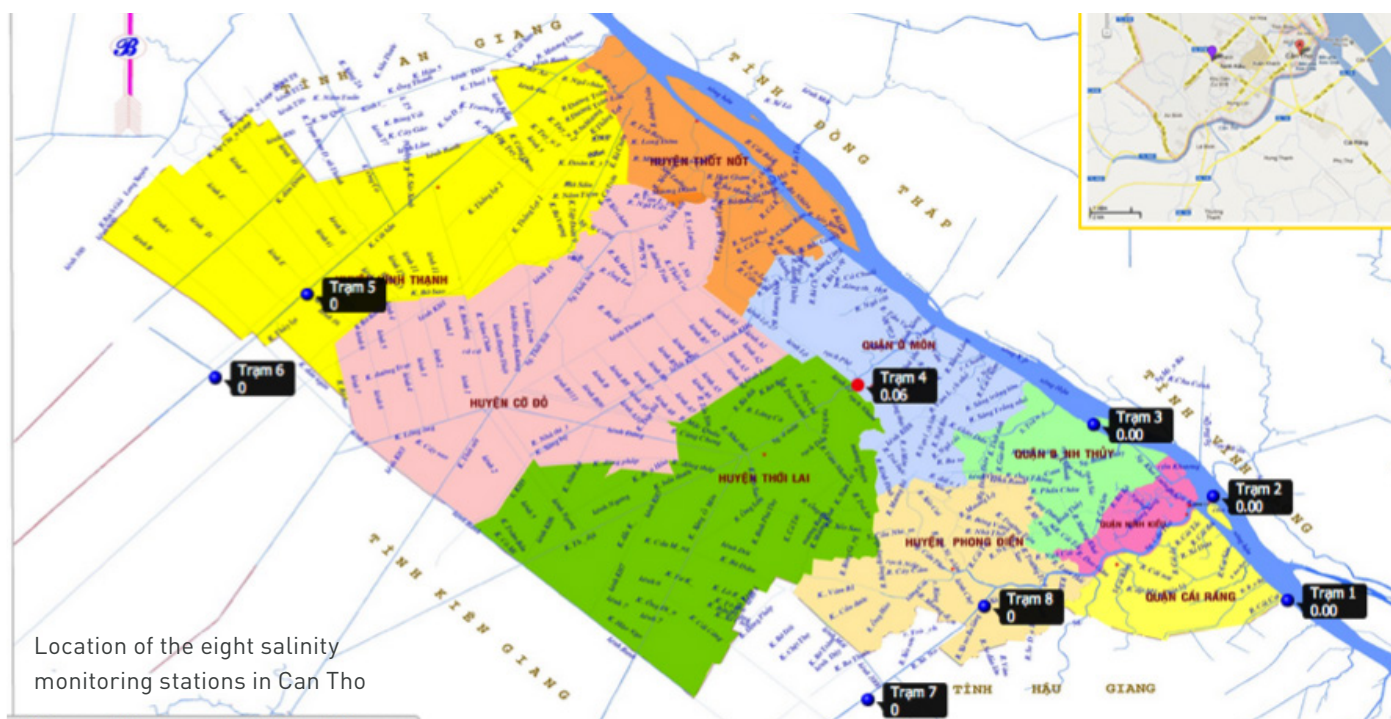
access to clean water supply and whose livelihood depends primarily on water resources. Yet currently salinity monitoring is only conducted twice a year in rainy and dry season, with data available to only a restricted group.

Local officials have prioritized addressing this issue in the context of a changing climate. With support from ACCCRN, they have developed an approach to understanding more about the salinity threat, providing a reliable, timely source of information on saline levels, and developing potential response strategies.

Our approach

This project is supporting Can Tho city to provide regular, accurate information on salinity levels and identify critical saline thresholds. It seeks to:

- **Establish real-time salinity-monitoring stations:** Eight salinity-monitoring systems recently installed around Can Tho (see map above) are each equipped with a wireless



Location of the eight salinity monitoring stations in Can Tho

telemetry data transmission system transmitting to a central data collection hub every 30 minutes. Data from the central data collection hub will be linked to an online database system to create a real-time salinity map. The map will be accessible publically on the website of the Can Tho Climate Change Coordination Office (CCCO).

- **Identify critical saline intrusion thresholds:** Using information compiled from surveys and focus groups, researchers will identify levels at which salinity becomes hazardous and public alerts are required. The research will also help identify potential response strategies to minimize the impact of salinity on sectors and populations.
- **Develop a system of public alerts for high salinity levels:** Project staff are devising a warning system to alert the public when thresholds are reached through local television, radio stations, newspapers, and a new SMS alert system that will send text messages to subscribers.
- **Launch of public awareness on salinity information, hazards, and possible responses:** Partners are leading an educational campaign—incorporating singing, dancing and drama—with local communities that have saline sensitivities. They will also provide training on saline risks and responses to staff from relevant agencies and departments.

The project also includes the potential to pilot intervention models, should saline intrusion be detected as a significant risk in the near future.

Lessons and Learning

- **The Can Tho system provides impetus and a model for regional monitoring:** The salinity monitoring system in Can Tho is the first automatic system to record and publish the real-time salinity data in the Mekong delta. The International Fund for Agriculture Development (IFAD) has visited Can Tho and discussed its intention to support one salinity monitoring system for the Mekong region as a whole, linking with Can Tho's existing system.
- **Salinity is a long-term problem that requires information in the short-term:** Government officials are highly concerned about saline intrusion in Can Tho and are eager to test infrastructure intervention actions such as construction of reservoirs. In contrast, research from the DRAGON institute, IWMI-SEA, and the Mekong River Commission suggest that salinity is unlikely to affect Can Tho directly for 20-30 years. The public likewise has limited concern and low awareness about saline intrusion, as farmers and other residents do not have direct experience with it. Some have advocated therefore that the city seek downstream partners, whose salinity issues are more urgent but where responding early could help prevent problems in Can Tho later on. The project team will determine whether and where to pursue infrastructure interventions based on monitoring results in 2013.

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INSTITUTE FOR SOCIAL AND ENVIRONMENTAL TRANSITION-INTERNATIONAL
CLIMATE RESILIENCE CASE STUDY

Can Tho, Vietnam

COMMUNITY BASED URBAN FLOOD AND EROSION MANAGEMENT FOR CAN THO CITY

2012–2015 | Partner: Ninh Kieu People's Committee, An Binh People's Committee, Can Tho CCCO, ISET-Vietnam, CnC, Can Tho University



Coconut and bamboo fences made by the local people to protect the riverbank.

© Huy Nguyen, ISET-Vietnam

CONTRIBUTIONS TO URBAN CLIMATE RESILIENCE



SYSTEMS

This project promotes cost efficient, “safe failure” approaches to flood management, such as biological river stabilization (or “green corridors”) methods, clean-up and restoration of traditional drainage systems, and improved waste management to combat river bank erosion and drainage loss.



AGENTS

The project aims to enhance the capacity of local community members, empowering them to coordinate, plan, implement, and continuously monitor local flood management systems.



INSTITUTIONS

Co-management is an institutional innovation, seeking to foster collaboration and benefit sharing within communities and between the public and the state. This project will experiment with new platforms for planning, coordination, and regulation, and will develop new mechanisms for management and monitoring.

For more information about The Climate Resilience Framework, please visit: www.i-s-e-t.org/CRF

Summary

An Binh ward is a densely-populated middle and lower-income residential area in the central city district of Ninh Kieu, Can Tho. The Cai Son River and local drainage channels traverse the ward. About 10–15 years ago, these played an important role in community life, facilitating waterway transportation, providing water for domestic and agricultural use, and providing drainage for residential areas.

Changing conditions, however, have seriously degraded these multi-functional, community assets. A shifting Mekong hydrological regime and sea level rise, proliferation of high-risk construction on riverbanks by poor, unregistered migrant households, and increased traffic from heavy river boats have caused riverbank erosion along the Cai Son. Meanwhile, encroachment from urbanization has narrowed channels from their historical width of 8–12 m to just 1–2 m. New development causes additional obstruction and contamination from sanitary and industrial sources.

Because of erosion and loss of drainage systems, local residents are increasingly exposed to flooding from heavy rainfall and seasonal high tides. The poorest areas in these communities suffer more frequent, deeper and longer inundations. Residents report financial losses, structural damage and health impacts from backed-up floodwaters, including the pollution load. These problems are caused primarily by uncoordinated urbanization—but sea level rise, tidal surge, and extreme rainfall events related to climate change will strongly exacerbate them.

Can Tho city has a clear policy mandate from the national government to preserve natural canals. However, it currently lacks practical enforcement mechanisms, penalties or management tools. Plans to build hard embankments along many of the river channels within the city are widely seen as prohibitively expensive and unlikely to be implemented. International experience from cities like Ho Chi Minh and Bangkok, moreover, demonstrate that damages wrought by poor urban development practices cannot be completely or safely

redressed by such “hard solutions.” New strategies emphasizing flexibility and “safe failure” are needed.

Community members in An Binh ward shared their concerns about worsening flood conditions with the CCCO through participatory planning. Many households have already developed their own small-scale responses to riverbank erosion, such as bamboo fences, growing water hyacinths, and planting mangrove apples. As of yet these efforts are too fragmented and uncoordinated to be broadly effective in the long-term.

Our Approach

The goal of this project is to harness the knowledge and experience of this proactive community to sustainably stabilize the riverbank and rehabilitate traditional drainage systems. The Can Tho CCCO, ISET-Vietnam, and CtC will work with the An Binh People's Committee to develop new mechanisms for joint community and local government protection of riverbanks, restoration of drainage channel, ongoing management and monitoring, and improvement in awareness and capacity for flood management.

Starting in January 2013, the project will undertake the following activities:

- With support from the University of Can Tho: review the causes of, rates of, damages and losses from, and existing approaches to combating river bank erosion along the Cai Son River; review the current state of drainage blockages in Ap Chien Luoc channel and how these blockages impact the environment, health conditions, and livelihoods; review local policies and guidelines regulating riverbank erosion and drainage systems in Ninh Kieu district; and document experience with biological erosion control methods and rehabilitation of urban drainage channels;
- Establish community groups and working procedures for biological riverbank stabilization and drainage rehabilitation;
- Work with community groups to prepare and implement ongoing monitoring plans, in consultation with local government and contractors; and
- Improve awareness of and capacity to implement flood management for related local government agencies, communities, community volunteers, self-management groups and local people through publications and dissemination, trainings, media, workshops and site visits.

Lessons and Learning

The project provides a critical learning opportunity regarding whether Vietnam can provide suitable conditions for successful co-management of urban infrastructure. Theories and practices of “co-management” assume that common, natural resources can be effectively managed by the public and the state collectively under conditions in which access and benefits sharing are agreed and maintained, all stakeholders are involved in establishing rules and regulations, benefits of protection/management outweigh the opportunity costs for the parties involved, and where monitoring and conflict resolutions systems are in place. There are many challenges for co-management in Vietnam, where enabling laws are just beginning to emerge at the national level. While there are some strong previous experiences with “community-based” approaches, many of these have been dominated by rules handed down by the government, which can be reluctant to share authority or inflexible in its interpretations of policies and guidelines. Likewise, the public at times is untrusting, or reluctant to take on tasks they believe should be undertaken by the state. For An Binh ward, an additional concern involves the boundary of the intervention, since new urban development within or outside of the ward can further threaten flood management systems.

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