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

Since there is no vaccine for dengue fever, reducing mosquito habitat and human exposure are the principle means of prevention.

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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

about vector avoidance behaviors (such as using repellant 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.

ISET-Vietnam Contact Information

Country Coordinator:
Ngo Le Mai
lemai@i-s-e-t.org

Address:
22A 1/42, 1 Au Co, Tay Ho
Tel: 04.371.867.02
Fax: 04.371.867.21