

CASE STUDY



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Resilient nations.

The Theory and Practice of Climate Resilience

Case Study: INFRA HUB and the Kampong Sawa Pilot Project
The Suriname Example



Background



The project team reviews before and after photos of the Kampong Sawa Pilot Project

Caribbean islands across the region have experienced first-hand the devastating effects of climate change. However, none are more acutely aware of the very real effects of our changing climate than rural communities that are below sea level. The 28-household community in Kampong Sawa, located in the Old Kampong Mariëburg in Suriname is one such community.

Mariëburg, located on the coastline of Suriname, is below sea level and Kampong Sawa residents suffer negative impacts from the rising sea levels and increased flooding associated with climate changes. Residents have reported that in recent years an upsurge in flooding has been occurring (approximately 6-8 floods a year).

Heavy rains, paired with improper maintenance and neglect of the drainage system, resulted in flooding which in turn cause sanitation and drainage problems for the entire Kampong Sawa community. Fifty per cent (50%) of the households in Kampong Sawa didn't have properly functioning septic tanks while 24 households

didn't have proper drainage systems. The poor sanitation and increased flooding results in a very high risk of contamination of ground water for the villagers.

INFRA HUB was established to address the needs of Kampong Sawa and other vulnerable communities in Suriname. The innovative project was a joint partnership between Japan-Caribbean Climate Change Partnership (J-CCCP) and the Anton de Kom University of Suriname's (AdeKUS) Department of Infrastructure. INFRA HUB merges theory, research and practical projects and was designed to educate and prepare students/communities on and for practical solutions to climate change.

This case study documents the first pilot project (Kampong Sawa pilot project) conducted through INFRA HUB, designed to 'Combat flooding in Kampong Sawa through adaptation measures for drainage and sanitation systems as well as to mitigate the effects of climate change.'

Project Overview

The Kampong Sawa pilot project was designed to reduce flooding to the Kampong Sawa community and consisted of structural and non-structural measures. The small-scale venture served as a demonstration project for the entire community of Old Kampong Mariënborg (1,047 people) experiencing similar problems. The pilot project has benefited approximately one hundred (100) students from AdeKUS and fifty-nine (59) direct beneficiaries (people living in Kampong Sawa).

The structural measures within the project included: rehabilitating the main discharge line in Kampong Sawa, improving drains for households' wastewater

and storm water and improving the overall drainage system of the community. Additionally, to address the sanitation issues, septic tanks were constructed, latrines (kakos¹) were replaced with water-flush toilets, and closed drainage systems were built.

The non-structural measures of the project focused on capacity building regarding improvement and maintenance of the drainage and sanitation system. It also created awareness about the effects of climate change in rural areas such as Old Kampong Mariënborg.



Kampong Sawa pilot project signage

A closer look at the INFRA HUB

The Department of Infrastructure identified a need for applied, result based and result oriented research and teaching methods focussing on climate change related infrastructural problems. The aim is to educate students to be both theoretically and practically able to solve climate change related infrastructural problems. INFRA HUB will be the vehicle for students (tutored by lecturers) to conduct research, design and build live projects in collaboration with actors (Government + non-Government), constructors, engineers/architects.

INFRA HUB will function as a practical project-based learning and knowledge-sharing centre based on two pillars: (1) conduct research/ develop information and (2) implement small scale infrastructure measures to combat the effects of climate change in the built environment.

An important component of INFRA HUB is that the communities themselves will be an integral part of the research and identification of solutions as it relates to the various climate-related problems affecting them.

¹The Dutch word for latrines



An AdeKUS student involved in the INFRA HUB Pilot Project

Outcomes of the Project

The project achieved several outcomes and the main benefits of the pilot project are outlined below:



Reduced Flooding

The improved drainage systems allowed the residents to enjoy a flood-free environment. This positively impacted small farmers and allowed flood-prone areas to be better used by members of the community.



Improved Drainage

The project cleared drains and upgraded the current drainage system.



Improved Sanitation

All households in the community received low flush toilets, which were connected to a functioning septic tank.



Practical Education of Students

The entire project allowed students to get hands on experience and practical knowledge needed to build climate resilience in the future.



Improved Quality of Life

Reduced flooding and the upgrade from latrines (kakos) to low-flush toilets provided residents with an improved standard of living. The project reduced the risk of water-borne diseases and residents were pleased to participate in the project.

The project further addressed the focal area of Community Based Climate Smart Resilient Infrastructure within J-CCCP's Outcome 2. It addressed Output 2.5: Climate resilience and disaster risk management activities - Small-scale infrastructure implemented to reduce climate change and disaster-induced losses. Additionally, the below Sustainable Development Goals (SDGs) were also addressed:



Goal 4: Quality Education

- The project provided high quality hands-on training for both genders. It provided students with the opportunity to acquire the knowledge and skills needed to promote sustainable development.



Goal 6: Clean Water and Sanitation

- The project improved the community's drainage and sanitation systems and reduced the risk of contamination of water sources.



Goal 13: Climate Action

- The project boosted the climate-resilience of the community. Due to better drainage systems, flooding no longer impacts the community.

Best Practices

As the first project of its kind in Suriname, there were several key areas that are important to note. The pilot project was seen as successful both to the beneficiary community and to the students who contributed. The following best practices were highlighted and can be considered in further community-based projects.

Bottom-up approach to solving problems

■ Members of the community were involved in the planned solutions which encouraged buy-in and community involvement. The project was designed to first listen to the needs of the residents and then, through collaboration, find solutions that best suited that particular community. This allowed vulnerable communities and beneficiaries to become active participants in building their own resilience.

Use of participatory action research (PAR) to find solutions

■ The participatory action research (PAR) in this context is a methodology that aims to gather and use research for addressing or solving local-level problems, rather than conventional research that focuses on gaining knowledge. This method serves the dual benefit of expanding the body of knowledge on climate change but also providing relevant data to solve current issues and contribute to policy development by providing relevant island-specific information.

Preparing youth with practical skills to promote climate resilience

■ The project gave students (supervised by their lecturers) the opportunity to conduct research on climate change related infrastructural issues. The students were able to develop applied research on practical solutions which are immediately implementable.

Collaboration with community and key stakeholders

■ Cooperation and collaboration with the community is crucial for sustainability. The project fosters collaboration and partnership between local communities, governments, and technical experts with the local communities driving the process.



The project team stands on a newly installed septic system, while discussing the project's progress

Final Thoughts

The successful execution of the pilot project through INFRA HUB highlights the importance of participatory action research and paves the way for many more climate resilient projects to be executed in the future. It takes a first hand approach to building community and local capacity to address climate change needs related to infrastructure.

This project is a shining example that theory and practice can work hand in hand to build more resilient communities.