

**GLOBAL CLIMATE CHANGE ALLIANCE:  
PACIFIC SMALL ISLAND STATES PROJECT (GCCA:PSIS)**

**CONCEPT NOTE**

**IMPROVING IMPLEMENTATION OF ENVIRONMENTAL HEALTH SURVEILLANCE AND  
RESPONSE TO CLIMATE SENSITIVE HEALTH RISKS IN KIRIBATI**

**Name of Country:** Republic of Kiribati

**Name of Person/Agency:** Tebikau Tibwe, Senior Health Inspector, Environmental Health Unit (EHU), Ministry of Health and Medical Services (MHMS), Kiribati

**General Information**

**Project title:** Improving Implementation of Environmental Health Surveillance and Response to Climate Sensitive Health Risks in Kiribati.

**Project site(s):** EHU-MHMS, Nowerewere, South Tarawa; and selected communities in the outer islands (Kiritimati and Nonouti islands to be confirmed).

**Project partners:** MHMS; Ministry of Environment, Lands and Agriculture Development; Ministry of Public Works and Utilities; Office of the President; World Health Organisation (WHO); GCCA: PSIS; SPC.

**Project oversight:** Project oversight will be provided by the National Adaptation Steering Committee, with further detailed oversight from the MHMS Technical Task Force.

**Project cost:** 500,000 Euros.

**Project duration:** 2.25 years, completion by December 2014.

**Short Description of the Project**

The project will provide the EHU of the MHMS with the necessary equipment and training so that the EHU can monitor and respond to vector-borne diseases, especially dengue fever, and other climate sensitive health impacts such as food poisoning, ciguatera, and contaminated water. Specifically, the project will enable the EHU to meet minimum standards in the areas of food and water safety and vector control, in parallel with an increase in the disease surveillance capacity within MHMS. The EHU works out of an existing laboratory at Nowerewere, Tarawa, and the project will provide the necessary equipment and reagents (in the form of a “mini lab”) so that minimum standards for food and water safety testing using standard operating procedures are achieved. The project will also make provisions for transport so that vector-borne disease surveillance can be undertaken in South Tarawa. The surveillance will be expanded to selected outer islands where SPC is focusing on delivering climate change adaptation activities to communities through a “whole of island” approach. Technical assistance and training in disease surveillance, in collaboration with SPC Public Health Division and the WHO, will be provided to the staff of the EHU. The project will also provide for public education and outreach relating to water and food safety and vector-borne diseases and will especially target vulnerable groups such as women, children, the disabled and those with pre-existing illnesses.

**Background and Justification**

Kiribati is highly vulnerable to the impacts of climate change, due to the low elevation of the islands, crowding and the lack of secure water supplies. According to the Government of Kiribati’s 2010 census, about half the national population of 105,000 resides on South Tarawa, which has an extremely high population density of approximately 2,500 persons per square kilometre.

The health impacts of climate change are specifically noted in the Kiribati National Adaptation Programme of Action (NAPA, 2007): “Human health is the recipient of all downstream effects of the impacts of climate change on other sectors, such as agriculture, fisheries, water supply, coastal areas, biodiversity resources and waste management”.

In Kiribati's National Climate Change and Health Action Plan (NCCHAP, 2011), expert assessment and stakeholder consensus identified four key areas of health-related vulnerability in the context of climate change:

- **Water safety and water-borne diseases:** There is strong evidence that rising temperatures and changes in rainfall patterns increase the risk of diarrhoeal diseases, particularly in situations in which the sources of drinking water are unprotected and it is difficult to maintain high standards of food hygiene.
- **Food safety and food-borne diseases:** Many food-borne diseases are climate-sensitive, and in general the risk of enteric infections transmitted by food increases as temperatures rise. Internationally, many studies have shown this relationship applies for illnesses caused by salmonella, campylobacter and a wide range of enteroviruses. In crowded conditions which make it difficult to maintain high levels of food hygiene, and where there are limited supplies of clean water, risks of disease are increased.
- **Vector-borne diseases:** A number of vector-borne diseases are promoted by warmer conditions and changes in rainfall. Other factors that are critical in causing outbreaks include presence of vector breeding sites, population density, the immune status of the population, and effective health care. In South Tarawa the large numbers of abandoned vehicles and other solid waste in close proximity to settlements could provide suitable sites for mosquito breeding. A major concern in Kiribati is dengue fever. This disease has spread widely through the region in the last 50 years. Pacific-wide, the number of outbreaks varies with the El Niño Southern Oscillation. The most effective mosquito vector (*Aedes aegypti*) is prevalent in Kiribati, and outbreaks of dengue occurred in 2003, 2004 and 2008.
- **Climate-sensitive disease surveillance:** Climate change will provide more favourable conditions for many infectious diseases hence a well-functioning disease surveillance system is an important element of a national climate change adaptation plan. In addition, studies indicate climate change may impact the ciguatera risk through changes to sea surface temperatures.

The EHU is the first-line defence against climate-sensitive diseases, and is therefore an appropriate focus for improved resourcing and increased technical support. This project aims to specifically address the areas identified in the NCCHAP 2011 which will go a long way towards protecting the health of i-Kiribati communities from the impacts of climate-sensitive infectious diseases.

### **Project Cost and Budget**

The cost of the project will be approximately EUR500,000 and the budget for various activities will be detailed when the project is fully developed.

### **Assessment against Criteria for Project Identification**

<b>Criteria</b>	<b>How does the proposed project adhere to the criterion?</b>
<p>1. <i>Feasibility:</i> Is the proposed project feasible taking into account:  Time frame of GCCA:PSIS,  Available budget,  National human resources,  Previous track record with project implementation.</p>	<p>Yes. The time frame should be sufficient for the planned activities The available budget should be adequate to establish the proposed Environmental Health laboratory (mini-lab), including transport and data storage, and related public engagement activities. Existing human resources within EHU are adequate and will be trained in the use of new equipment.</p>

<p>2. <i>Cost</i>: Does the project require minimal resources</p>	<p>Yes. The physical infrastructure for the mini-lab already exists. Resources will be provided for laboratory equipment to test physical, chemical and microbiological parameters of water samples; microscopes for mosquito/larval identification and counts; water supply; testing reagents; transport; computers for data storage and analysis.</p>
<p>3. <i>Consistency</i>: Does the project support the country's climate change adaptation policy and planning</p>	<p>Yes. This project addresses the health priorities in the Kiribati Development Plan along with recommendations in the NCCHAP 2011 and aligns with the health aspects of the NAPA 2007 and the National Framework for Climate Change Adaptation 2012 (Priority Areas #1: Integration of adaptation into institutional capacity; and #2: External technical and financial assistance).</p>
<p>4. <i>Urgency</i>: Is the project urgent or could it be delayed 10 years with minimal impact</p>	<p>Yes. The need to strengthen EHU capacity is urgent with high prevalence of typhoid, childhood mortality from diarrheal diseases; food safety issues; and lack of testing since 2010.</p>
<p>5. <i>Scientifically valid</i>: Is the project based on scientifically valid climate change projections</p>	<p>Yes. Most recent climate change projections for Kiribati indicate an increase in temperature of <math>1.6 \pm 0.5^{\circ}\text{C}</math>, and an increase in total annual rainfall of 13-41% relative to 1990 under the high emissions scenario (A2) by 2055<sup>1</sup>. These projections will likely exacerbate conditions for mosquito breeding and increase the potential for transmission of diseases such as dengue fever, as well as affecting food safety and water quality.</p>
<p>6. <i>Equity</i>: Does the project involve all sectors of society (especially community participation and gender considerations)</p>	<p>Yes. The scientific literature identifies children, the elderly, those with disabilities and pre-existing illnesses, and certain occupations (farmers, fishermen, outdoor workers) as facing increased vulnerability from the health impacts of climate change. In Kiribati, the greatest incidence of climate-sensitive diseases (e.g. water-borne diseases) is seen in children. Women in Kiribati have also been identified as a priority group with respect to safe water supply for domestic usage.</p>
<p>7. <i>Replication</i>: Can the project be replicated in the country or elsewhere</p>	<p>Yes. This project can be replicated in other Pacific island countries, especially those facing food and water insecurity and with dengue-endemic areas.</p>
<p>8. <i>Measurability</i>: Can the benefits of the project be measured and quantified</p>	<p>Yes. The specific project outputs can be clearly identified and measured and an M&amp;E framework will be developed for the project. However, some of the outcomes e.g. improved vector-borne disease control and fewer epidemics, will only be</p>

	measurable in the longer term.
9. <i>Scope of project</i> : Does the project activity focus on one sector and include a blend of visible (on-the-ground) activities and intangible support activities (e.g. policy development, capacity building)	Yes. The project focuses on one sector - health. The project includes tangible activities, such as the establishment and equipping of the mini lab, and support activities such as capacity-building through training of EHU staff and improved data synthesis and dissemination, all of which will in the long term help to build sustainability.
10. <i>Risks</i> : Identify key risks to successful project implementation	- Potential high turnover of EHU staff and competing priorities for staff such as food inspections, quarantine, epidemics; -Delays in procurement of equipment, equipment failure, interrupted supply of reagents.
Date of Assessment	26 August 2012

<sup>1</sup> Australian Bureau of Meteorology and CSIRO, 2011; Climate Change in the Pacific: Scientific Assessment and New Research Volume 1: Regional Overview. Volume 2: Country Reports.