

Traditional Kiribati beliefs about environmental issues and its impacts on rural and urban communities¹

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Keywords:

Collaboration, Cultural competencies, Integrated disaster risks management, Local traditional knowledge

This paper forms part of a the DRR2DEV programme including a range of case studies, discussion and analysis and inviting further participation in thinking critically about how to do development differently and better.

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¹ *An edited version of this paper was published in the Special Edition of the "Disaster prevention and management: An international journal" Vol. 28 No. 1.*

[Ruiti Aretaake](#) (2019) "Traditional Kiribati beliefs about environmental issues and its impacts on rural and urban communities", [Disaster Prevention and Management](#), Vol. 28 No. 1, pp. 25-32

DOI

: <https://doi.org/10.1108/DPM-06-2018-0182>

Summary

- (1) The lack of fresh water leads to water contamination, in turn, leading to bouts of diarrhea among children and overall loss of local food.
- (2) Limited land space leads to overcrowding, increasing crime, relocation of homes from coastal areas to inland and land disputes.
- (3) The sea level rise leads to land erosion, loss of houses along the sea shore, inland flooding, limited land space for gardening, narrow bed for underground fresh water, changes in seabed current leading to dying seaweed consumed by fish and fish poisoning leading to ciguatera.
- (4) Increase in temperature leads to unavailability of foods in terms of long period of drought or no rain have great impacts on the porous and unfertile soil leading to unhealthy plants with less produce, consequently leading to the adoption of new farming techniques to planting new vegetable crops. Increase in crabs' number leads to them eating these vegetables and unbalanced diet leads to high rates of health issues so new recipes are developed for cooking nutritious dishes.
- (5) Unemployment: leading to sand and gravel mining causing environmental damage, increase in number of out of school attendances by young people leads to more crimes and domestic violence.

Disaster risks and climate change are increasingly affecting the lives of Kiribati islanders. As these impacts are multifaceted, embracing environmental, social and economic issues, a partnership is required to address them, bringing together both state and non-state actors to learn and act together. This case study demonstrates both the potential and difficulties of convergence of new ideas with traditional knowledge through giving an account of the encouragement of collaboration between local stakeholders, communities and the government to reduce the impact of disaster risks and the impacts of climate change on livelihoods and lives. Traditional knowledge is seen to contribute to addressing the challenges Kiribati faces. The Kiribati "Frontline" project is an activity which has been led by the Foundation for the Peoples of the South Pacific Kiribati (FSPK), both stimulated and in part subsidized by the Global Network for Disaster Reduction (see the Paper 2 in this Special Edition for more detail).

Subject of the case study

- Local action and learning.

Important themes and issues:

- Local and non-local knowledge sharing – receptiveness and reticence.
- Threat and consequences faced.

The case study - Introduction

“Traditional beliefs about environmental issues and its impacts on communities” is a title that suits our Kiribati Frontline program especially when dealing with affected rural communities as a result of disaster risks and climate change impacts. Traditional knowledge which had faded away is now being revived to help reduce the causes and impacts of disaster and climate change issues. Water, food and limited land space have not been a problem with rural and urban communities in the past but recently everything has changed in its form and usage. In the present environment of living and survival, the Kiribati Frontline program has working with rural and urban communities to integrate modern technologies with traditional knowledge as a way forward to better resilience and livelihoods.

The Frontline program stimulated partnerships between relevant government ministries, CSO, NGOs and community groups in different areas to initiate community empowerment, improve water systems and develop food security. Overall, 22 communities on Aranuka and Marakei islands have been involved in the program. Implementing adaptation activities on both islands has been done in partnership with Island Council officers working on related activities, including agricultural officers, water technicians and village councils. Consultations with communities include developing a plan and prioritization of issues for each community as the first initiative for the program as both targeted islands do not have an existing one. Community development plans (CDP) enabled communities to own the plan and become part of the implementation. These plans were done through a process where communities did the mapping of their resources and issues identifying their strengths and weaknesses in combating the issues and utilizing the resources. From this process, they prioritize their issues to support the goals they have for their community to achieve an outcome of CDP.

The program provides technical support by engaging external service providers from the government ministries as well as community members with traditional knowledge concerning issues such as coastal areas, underground well water and agriculture. In addition to these issues, the high rates of health issues have led communities to use local medicines from local plants and vegetables they produce.

“The main objectives outlined here reflect those stated in the FSPI MORDI program which FSPK is a part” (FSPI, 2017) are to:

- Establish improved linkages with relevant external organizations including government, private sector, NGOs and community-based organizations (CBOs) so as to increase access to basic services and increase community resilience to external risks and disasters.
- Increase income generating and sustainable food opportunities, especially for rural women and youth.
- Address the lack of access to financial services, markets and related technology and information. Assistance during the implementation is targeted at increasing opportunities for both the community as a whole and groups within the community, giving priority to youth and women.

Financial support provided by the program has been regarded as a tool to empower communities to become more self-reliant through enhanced social capital, sustained access to services and increased financial self-reliance. Not all communities are willing to part take in the program as some might have illiteracy issues; therefore, the program does not expect everyone to be involved. However, the continuation of community visits and provision of technical support in areas where there seemed to be ambiguity and uncertainty, communities gradually became involved until they fully understood how the program is implemented.

CDP were developed during the community consultations. Communities prioritized their problems and as a result highlighted access to water and development of home gardens. In partnership with the Island Council water technician, communities were able to identify areas with fresh water for underground well water. Establishing small working groups within a community assists the program to gain more interest as these communities were able to communicate directly and share views in smaller groups than in a larger one.

The program has provided training to remote rural communities to enhance their skills and knowledge with new technologies in gardening to combat the impact of disaster risks and climate change. The poor soils and effects of climate change have led to this training being conducted by an agricultural assistant based at an Island Council supporting communities in new and changed practices.

Context

The Republic of Kiribati is composed of 33 islands of Kiribati, a remote and low-lying nation in the Pacific Ocean, which is under threat from climate change. The Republic gained independence on the July 12, 1979. In total, 21 of the islands are inhabited, and the whole country is divided into three island groups. The highest point on many of the islands such as South Tarawa is just a couple of meters above the sea level. Rising ocean waters are threatening to shrink Kiribati's land area, increase storm damage, destroy its crop-growing lands and ultimately displace its people long before the islands are submerged^[1] (Figure 1).

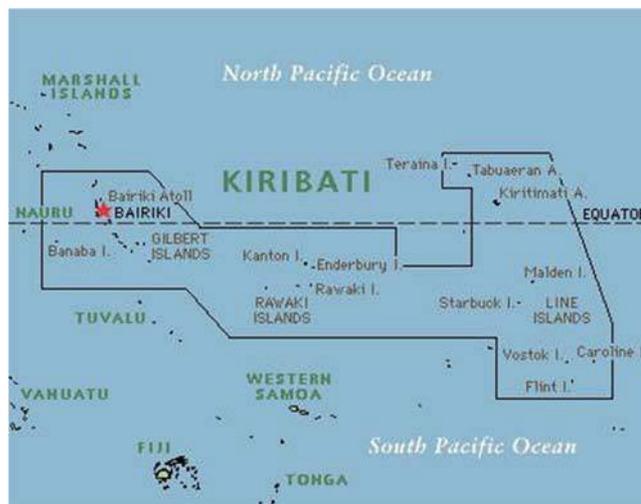


Figure 1. Map of Kiribati islands

Challenges faced

Marakei Island is one of the target islands for the Kiribati "Frontline" project, which this case study will focus on. Most of the communities on this island are at risk from the impacts of sea level rise. Already, most of those living on the coastal area have lost land and houses have been damaged and some partly collapsed as a result of the coastal erosion. Sea water incursion into underground wells means that the

inhabitants have to access fresh water from further inland. The main local food plants such as breadfruit and coconut trees are dying because of salt water from the sea incursions, and food security and income generation are greatly affected. The issue of ciguatera (food poisoning from a toxin accumulated in fish) has become common on this island and communities have to be careful on what kind of fish to eat. People who have ciguatera may experience nausea, vomiting and neurologic symptoms [2]. This is a recent phenomenon resulting from the change in climate, the types of seaweed that fish usually feed on have changed too and so it makes eating fish unsafe on this Island. Other changes are taking place: efforts to introduce new crops such as growing cabbages to add to local food sources are hampered, because crabs come on shore and eat such plants.

Action taken in response

FSPK – Kiribati Frontline program is currently engaging an island water technician to work on identifying the areas of fresh water on the target islands in order to retrieve to communities in salinity areas. In addition, the water technician and communities have agreed on using hand water pump as it is a simple method that can be maintained and repaired by communities. This is a manual system where it only requires manpower which can be a form of exercise for youth and women while at the same time it gives them access to fresh water from a remote area. The minimal budget provided by the program does not allow every household to have hand water pump; therefore, four to six households have to share one hand water pump. This number of household to share a water pump depends on the closeness between several houses.

Homes along the coastal areas have been affected greatly from the impacts of sea level rise and, therefore, they have to be relocated to inland which incurred lots of discomfort and inconveniences. Culturally, land distribution among families is always done so the more people in one family the lesser or small land space each family should get. Limited land space resulted in inadequate space for gardening and sometimes leads to land dispute among some families. Reconstructing a new home is another burden as not every family has the proper skill and knowledge to build local houses. Communal houses – Maneaba always used as a rehabilitation house for those communities with disabilities while families give assistance in rebuilding of new homes in safer areas.

Identifying which fish to eat is now another challenge for this island. Communities have used their traditional knowledge on selecting good fish to eat which now cannot be guaranteed as sometimes the test for good fish is not stable. Therefore, communities on this island are very familiar with ciguatera symptoms and are aware of local medicines or trees that can stop the poison or cure the sickness. The program is able to work with local communities to share skills on how to identify good and bad fish to reduce the issue of fish poisoning.

Moreover, home gardening is not an easy activity with the communities. The main food crops are *swamp dalo*, breadfruits, banana and papaya and so the introduced vegetable plants such as cabbage, tomato, cucumber, sweet-pepper and eggplant need much attention and care in planting them. With the porous infertile soil, home gardening training is crucial for these communities in order to sustain the healthy garden produce they need for their daily diets. The training contents provided to the communities include composting to supply nutrients to the soil, germinating seeds and cuttings, transplanting, watering and harvesting. An island agriculture officer together with the nurseryman provide technical support to communities if they have issues with their garden while the FSPK Frontline program provides seeds and cuttings when they are needed.

Planting and eating are two different things and, therefore, communities have the capability to plant but need support to identify produce that are ready for cooking or eating. Therefore, the program conducted harvesting training which leads to cooking demonstration on garden produce to allow communities to consume what they get from their garden. Recipe pamphlets are developed and distributed to communities members who participate in the cooking session.

Reflecting on the action

Food security is the main problem on an atoll island such as Marakei. The porous and unfertile soils have led communities to adopt new techniques or revive traditional knowledge from old people in order to support the planting of indigenous and imported vegetable plants. Plants which were grown previously, including breadfruit, swamp dalo (also known as Giant swamp taro (*Cyrtosperma merkusii*)), and coconut trees have been affected by the change in climate as normal rain seasons are not occurring and increase in temperature as well as sea level rise

has prevented plants to get good nutrients from the soil for their growth. This resulted in poor produce and reduced yields.

Working with partner NOGs and CBOs already involved in innovative work with rural communities is crucial as to support each other for sustained long-term engagement. There are limited resources for the expansion and consolidation of successful innovations. Traditional structures are increasingly less stable to act as community safety nets and to cope with the increasing complexity of the issues.

Strengthening the institutional capacity of target communities would help address these challenges. Documentation and sharing of learning from best practices and innovations across the region could be encouraged. Establishing processes that enable remote rural communities to link with policy and planning processes would enable government to consider rural communities issues when making decisions or policies. For instance, the CDP that have been developed by communities are incorporated as part of Island Council Development Plan. The issues identified and prioritized in the plans are put forward to the concerned government ministry such as Ministry of Internal Affairs to seek financial support in cases where the program could not provide this. Bylaws are formulated and regulated to support community's development plans on food security to provide every household to have a garden otherwise a fine has to be imposed on those household who do not comply with this bylaw.

Barriers to action

Working with communities is not an easy task and the program has to find ways to deal with issues encountered during the implementation. First, with the overcrowding of people who are being relocated to inland, the issue of environmental pollution occurred when communities have no proper places to dump their rubbish. An initiative to reuse and recycle rubbish lead to having a solid waste management activity. Sorting of rubbish into organic and inorganic waste brought in an opportunity to reuse inorganic waste such as plastics and bottles where they are used for decorations around the homes or schools and clean bottles for water storage. Organic rubbish is then used for garden compost which supports the promotion of home gardening for food security.

The use of underground well water for drinking water requires that it should be boiled as it is not safe to drink directly from the well. In areas where freshwater is not available watering a garden is not a priority and, therefore, balancing diets among families is a priority. Mothers and young children have the main task to prepare for family drinking water so boiling water every day needs plenty of firewood where income is not good in a family. However, the high tendency to use light cooking strategies and the use of kerosene or gas increased which is expensive especially on outer island when income depends on copra cutting and fishing. Women are trained and encouraged to use simple energy renewal systems that require only little firewood and does not cost money.

Living in an extended family is common in the Kiribati culture. Religions have grown wildly and different denominations have different rules. Family planning is not allowed in some churches especially the Roman Catholic and, therefore, issues of overpopulation in the homes still exists. Men are regarded as head of families and decision-makers and so children have the least in voicing what they think. Children and women are seen to be the most vulnerable in the communities and they do not get the rights as men do. Therefore, gender equality is needed to break cultural resistance to enable the change in the mindset of men.

With the Island Council system, there is no proper land planning management as everyone in the community is expected to build his home on his inherited land from his ancestors or parents.

Adaptation activities promoted to communities in preventing coastal areas from erosion does not work well with the geographical features of the island. Eroded areas are more on the ocean side and mangrove planting and sea wall construction are always a challenge. With the lack of financial resources, traditional knowledge in building soft sea wall measures can only be implemented with people willing to share their skills and knowledge. However, as a custom, families have their own talent that cannot be shared with any other family and, therefore, it is hard for the program to directly engage these talented people. Cost has to incur as an incentive for any community member who is willing to offer or share the knowledge to the rest of the communities.



The way forward

To look into the priorities of the communities stated in the CDP, the program has identified two main issues which are mainstreaming of fresh water for consumption to alleviate health issues; and promoting of food security measures to support the lack of fresh vegetables for balanced diets and supplement the high demand of imported processed foods.

The following strategies to support the two main issues stated above will be to:

- (1) Identify community meeting places (maneaba) with aluminum iron roofing that can be used for rainwater harvesting and seek financial support to provide water tanks.
- (2) Install hand water pump for households to share in order to support them in accessing fresh water from a remote area. This is a simple and less cost-effective system that does not need or require the technical expertise in fixing or maintaining the pump.
- (3) Establish convenient garden nurseries in between communities to provide easy access to seedlings and plants. These nurseries can be supervised by own communities members with the support of the Island agriculture officer and the nurseryman.
- (4) Reprint and distribute pamphlets for recipes and garden guide to encourage ongoing garden initiative and balanced diets.

Maintaining the good relationship and strengthen working partnership with communities, local Island Council, stakeholders, NGOs and related government department will enable the program to sustain the momentum of achieving a successful outcome. These can be done by way of having:

- (1) Establishing working groups on water and agriculture as to maintain momentum of participation in the program;
- (2) Sharing best practices on community engagement so as to build self-confidence to work with communities and partners;
- (3) Providing equal opportunities for gender to participate in the program; and
- (4) Combining efforts to influence policy makers.

Educating communities is essential on how to deal with daily issues. Strategies through promotion and awareness programs can be by way of:

- (1) Producing newspaper adverts on approved methods of building sea wall;
- (2) Radio talk back show on the impacts of constructing homes on coastal areas;
- (3) Disseminating of translated smart solutions into local context to reduce and prevent causes of disaster and climate change issues; and
- (4) Promoting of human rights to allow citizens to voice their concern in relation to the impacts of disaster and climate change.

Communities need empowerment and support on developing economic opportunities through the provision of trainings on income generating such as making handicrafts to sell or exchange for their needs. In this sense, the unfortunate with less coconut trees to cut copra as a source of income generating can sell handicrafts such as mats, hats, strings, etc. Traditional knowledge sharing such as building canoes for fishing can be transferred to younger generation so as to maintain the knowledge and skills. Advocacy techniques such as lobbying and campaigning to key decision-makers as well as within the government level to seek employment opportunities in other countries to utilize the talents as an exchange for income to support families back in the outer islands.

Local actors

FSPK Frontline program works in partnership with groups existing within the communities such as women's group, youth groups, elders (unimane) and church groups. The disaster risk and climate change network in Kiribati include representatives from Meteorological Unit; Office of the Beretitenti; Ministry of Land, Environment and Agriculture Department; Ministry of Education; Tetoamatoa Disability Group; Te Bahai Youth Group; Red Cross; Caritas; KiGenderCC; Betio Town Council communities; South Tarawa communities; Marakei and Aranuka Islands. Everyone is involved by way of contributing to the implementation of the Frontline program in Kiribati.

Notes

1. The Guardian, www.theguardian.com/world/2017/oct/23/waiting-for-the-tide-to-turn-kiribatis-fight-for-survival
2. Harmful Algal Blooms: Ciguatera Fish Poisoning: Home | CDC HSB, available at: www.cdc.gov/NCEH/ciguatera/default.htm

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