



ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

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Abbreviations

ADB	Asian Development Bank
AF	Adaptation Fund
BOM	Australian Bureau of Meteorology
CFD	Climate Finance Division, Ministry of Finance
CLTS	Community-led total sanitation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
ENSO	El Niño–Southern Oscillation
GCF	Green Climate Fund
GDP	Gross Domestic Product
GS&AP	Gender Strategy and Action Plan
IPCC	Intergovernmental Panel on Climate Change
KIRIWATSAN	Kiribati Water and Sanitation Project
KM	Knowledge Management
KV20	Kiribati Vision 2020
LDC	Least Developed Countries
MDG	Millennium Development Goals
MISE	Ministry of Infrastructure and Sustainable Energy
MELAD	Ministry of Environment, Lands and Agricultural Development
MoH	Ministry of Health
MWYSA	Ministry of Women, Youth and Social Affairs
OD	Open defecation
ODF	Open defecation free
RERF	Kiribati Revenue Equalization Reserve Fund
SPCZ	South Pacific Convergence Zone
SPREP	Secretariat of the Pacific Regional Environment Programme
SST	Sea surface temperature
UNDP	United Nations Development Programme
WASH	Water and Sanitation, Hygiene
WHO	World Health Organisation



ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular Project
Country:	Republic of Kiribati
Title of Project/Programme:	Enhancing the resilience of the outer islands of Kiribati
Type of Implementing Entity:	Regional Implementing Entity
Implementing Entity:	Secretariat of the Pacific Regional Environment Programme
Executing Entity/ies:	Ministry of Infrastructure and Sustainable Energy, Republic of Kiribati
Amount of Financing Requested:	USD 9,974,655

Project Background and Context:

Project Overview

The Republic of Kiribati is located in the Central Pacific and is one of the smallest, most remote, geographically dispersed and climate vulnerable Least Developed Countries (LDC). Comprised of 33 atolls in three groups (Gilbert Islands, Line Islands and the Phoenix Islands), these far-flung atolls are mostly less than two metres above sea level, lack surface water and soil, have fragile groundwater systems and limited terrestrial biodiversity, and are vulnerable to the impacts of climate change.

Water supply issues in Kiribati are amongst the most complex in the world, and feature among the key priorities in the Government's Kiribati Vision 2020 (KV20). Water resources in Kiribati are very vulnerable, limited and scattered and have to be protected and utilised carefully. Households in the outer islands rely on groundwater and rainwater harvesting to provide for their daily water needs including drinking, cooking and washing. However, groundwater resources and rainwater water supply are critically dependent on weather conditions, climate variability and even seawater inundation during extreme sea level events arising from a combination of high tides, storm waves and elevated regional sea levels, affecting water quality and having an increasingly negative impact on health.

Kiribati is among the Pacific Island Countries that did not attain the MDG sanitation target to "halve, by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation". The World Health Organisation's most recent analysis of the status of sanitation, drinking water, and hygiene in the Pacific Island Countries concludes that few basic principles should orient the water and sanitation sector in the years to come. First, water and sanitation solutions need to be sustainable, safe, and not adversely impact fragile water resources. Second, more needs to be done to empower small, isolated and informal communities to safely and sustainably manage their own drinking-water, sanitation and hygiene. Third, a significant increase in support is required to strengthen the capacity of Pacific island governments, utilities and communities to manage sustainable water and sanitation services in the face of human and financial resource constraints. Finally, safe and sustainable water and sanitation solutions are vital to strengthen and maintain the resilience of Pacific communities to the increasing threats of climate variability, climate change and natural hazards¹.

This Adaptation Fund project incorporates these principles into the design in order to strengthen the resilience of the outer island communities to the threats of climate change and natural hazards. In particular, the proposal focuses upon: the implementation of evidence-based driven interventions aimed at delivering equitable access to sustainable and safe water and; developing and implementing mechanisms designed to empower outer island communities and the Government of Kiribati to make joint decisions on water resources and sustainably manage and maintain the water resources and sanitation.

¹ Source: WHO, UNICEF, SPC and UN Habitat. 2015. Sanitation, drinking-water and health in Pacific island countries: 2015 update and future outlook. https://iris.wpro.who.int/bitstream/handle/10665.1/13130/9789290617471_eng.pdf

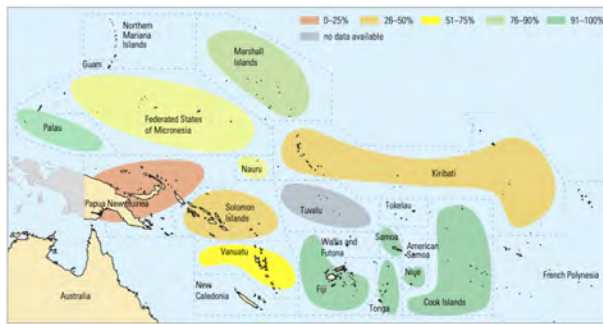


Figure 1. Improved sanitation coverage in the Pacific region (2015)

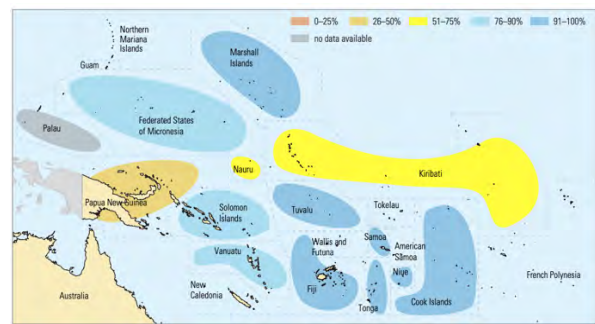


Figure 1. Improved drinking water coverage in selected rural areas of the Pacific region (2015)

Background Context

Geographical Context

The Republic of Kiribati is comprised of 33 atolls in three groups – the Gilbert Islands, Line Islands and the Phoenix Islands (Figure 3), totaling 811 square kilometres of land distributed over 3.5 million square kilometres of ocean. Of the 33 islands, 21 are inhabited with more than half of the population residing in the Gilbert Islands. In 2015 the population of Kiribati was 110,136 people and 17,772 households, with the average size of households of six people. Males comprise 54,096 and females 56,040 of the population. Of this, approximately 57 percent or 63,017 people live in the main atoll of Tarawa (i.e. North Tarawa, South Tarawa and Betio) in the Gilbert Group².

The island atolls of Kiribati are mostly less than two metres above sea level, vulnerable to the impacts of climate change, lack surface water, have fragile groundwater systems, and have no soil and limited terrestrial biodiversity. The islands support a rich culture that relies heavily on a diverse and healthy marine environment for its survival. Because of their isolation these islands support more rare and endangered species per capita than most other places in the world. Kiribati's ocean waters are amongst the most productive and least polluted on earth, it has one of the largest stocks of tuna and related pelagic species that underpins its national economy³.

Since it was first settled, the people of Kiribati have relied on their natural resources for survival. An estimated 80 percent of the population primarily lives a subsistence life style, a dependency on the marine environment for food, transport, traditional practices and economic opportunity. On atolls the terrestrial environment is more limited but it is essential for water, food and shelter⁴.

The capital of Kiribati is South Tarawa, which provides opportunities for cash employment and consumption, as well as access to higher education and specialist social services not available elsewhere in Kiribati. This has led to population growth of 5.2 percent in recent years into both North and South Tarawa. Due to the geography of the narrow and low-lying Tarawa atoll, the entire population and most of the infrastructure is concentrated along the coast, making it directly exposed to climatic threats such as global-warming induced sea level rise. Kiribati faces significant challenges due to its remoteness, lack of scale and vulnerability to external shocks and environmental stress.

² 2015 Population and Housing Census

³ Integrated Environment Policy 2012, Government of Kiribati

⁴ Ibid

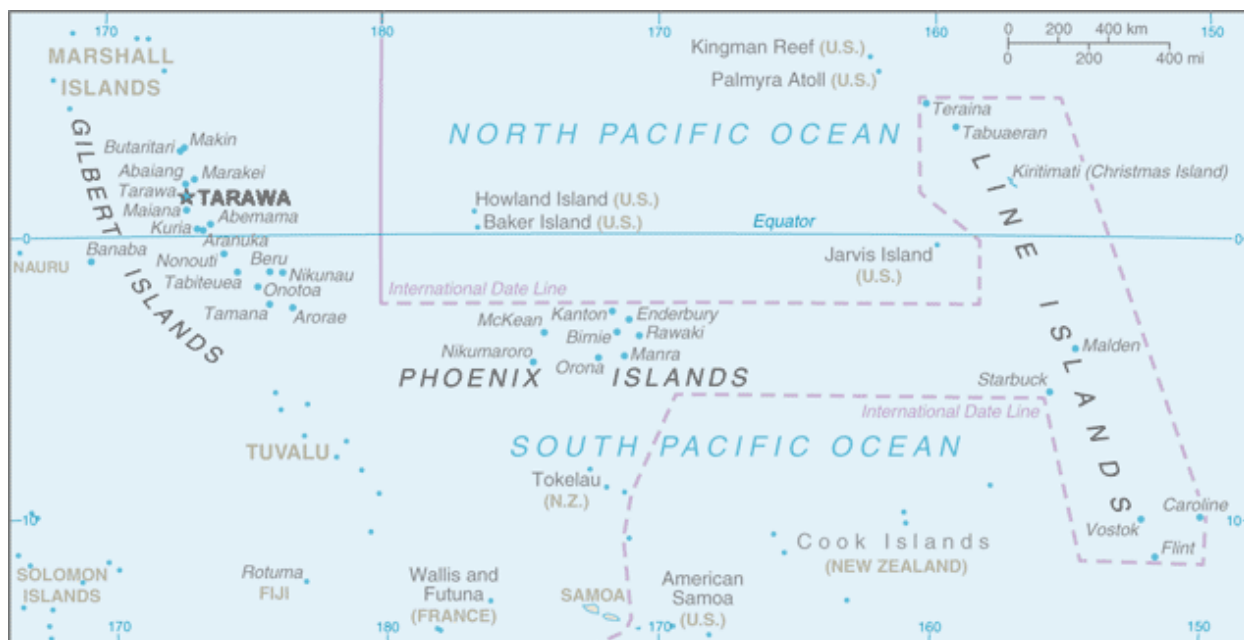


Figure 2. Republic of Kiribati map

Economic Context

Kiribati faces significant economic and service delivery challenges. In addition to being one of the most vulnerable countries in the world, and one of the most affected by climate change, other challenges stem from a highly dispersed population, remoteness to major markets, lack of arable land, a narrow economic base and the dual problems of sparse outer island communities and heavy overcrowding in the capital⁵.

Kiribati relies heavily on fishing revenue and remittances from citizens employed abroad, mainly seafarers⁶. In terms of the overall economy, reliance on fishing dominates, accounting for 26.1 percent of the Kiribati economy, with government consumption accounting for 25.7 percent and construction at 20.7 percent – the latter two funded through increases in fisheries revenue and donor programs⁷. The role of the public sector in Kiribati is also an important driver, accounting for more than half of the estimated gross domestic product (GDP).

A UNDP study of poverty in Kiribati showed the highest incidence of basic needs poverty occurred in South Tarawa, affecting 18.3 percent of households and 24.2 percent of the population. This is the highest poverty rate in the Pacific. Moreover, as much as 66 percent of the population is at risk of falling into extreme poverty, and this risk is amplified by the effects of climate change on freshwater supply, health and sanitation and coastal infrastructure. With a Gini coefficient of 0.39, inequality in Kiribati is relatively low in international comparison. Expenditures of the richest quintile of households are 4.7 times expenditures of the poorest quintile.

⁵ Webb, J., 2019, *Kiribati: 2019 economic survey*

⁶ The sale of fishing licenses with revenue from access fees increasing from US\$29.1 million in 2011 or 17 percent of GDP to US\$197.8 million in 2015 or 88 percent of GDP (Webb, J., 2019, *Kiribati: 2019 economic survey*)

⁷ Webb, J., 2019, *Kiribati: 2019 economic survey*

A whole-of-island approach is being pursued by the government to address the impacts of climate change and related sea-level rise and environmental issues in Kiribati. The effects of climate change are major challenges against developmental efforts which will require capacity building at all levels to manage and improve environmental, social and economic sustainability. In order to build island resilience to the adverse impacts and extreme events of climate change and in parallel with achieving the common development goals of Kiribati, the country relies mostly on external aid (donors) to finance its adaptation measures towards climate change as the country is unable to meet the costs of adaptation on its own. An economic evaluation of the costs of climate change related risks has been estimated to be 35% of Kiribati GDP. The estimate considers only the potential impacts of climate change on the coastal zone (US\$7-\$13 million a year) and water resources (US\$1-\$3 million a year)⁸.

Climate Change Context

Current climate⁹

Temperature

Kiribati has a hot, humid tropical climate, with air temperatures very closely related to the temperature of the oceans surrounding the small islands and atolls. Across Kiribati the average temperature is relatively constant year-round. Changes in the temperature from season to season are no more than about 1°C.

Rainfall

The driest and wettest periods in the year vary from location to location. At Tarawa, in the west, the driest six-month period begins in June, with the lowest mean rainfall in October. The wet season usually lasts from around November to April. At Kiritimati, 2000km to the east, the wet season is from January to June and it is much drier than Tarawa.

Rainfall in Kiribati is affected by the movement of the South Pacific Convergence Zone and the Intertropical Convergence Zone. They extend across the South Pacific Ocean from the Solomon Islands to the east of the Cook Islands, and across the Pacific just north of the equator, respectively (Figure 3). These bands of heavy rainfall are caused by air rising over warm water where winds converge, resulting in thunderstorm activity.

Year-to-year variability

Kiribati's climate varies considerably from year to year due to the El Niño-Southern Oscillation. This is a natural climate pattern that occurs across the tropical Pacific Ocean and affects weather around the world. There are two extreme phases of the El Niño-Southern Oscillation: El Niño and La Niña. There is also a neutral phase. Across Kiribati, El Niño events tend to bring wetter, warmer conditions than normal. In the wettest years Tarawa has received more than 4000 mm, while in the driest years as little as 150 mm of rain has fallen.

Droughts

Droughts can be very severe and are usually associated with La Niña events. Average annual rainfall in Tarawa is approximately 2100mm with just over 900mm received between May and October. From July 1988 to December 1989 only 205 mm of rain fell, while from August 1998 to February 1999 total rainfall was 95 mm. The recent drought from April 2007 to early 2009 severely affected water supplies in the southern Gilbert Islands and Banaba. During this period groundwater became brackish and the leaves of most plants turned yellow.

⁸ Webb, J., 2019, Kiribati: 2019 economic survey

⁹ PACCSAP 2015

Past La Niña events have shown that the impacts of droughts can be very severe in Kiribati. For example, in 1971, 1985, 1998 and 1999, annual rainfall was less than 750mm. The recent drought from April 2007 to early 2009 severely affected the southern Kiribati islands and Banaba. During this period, copra production significantly declined, depressing the outer island economies which rely on copra as the main income source. The groundwater also turned brackish and the leaves of most plants turned yellow. During the 1970–1971 drought, a complete loss of coconut palms was reported at Kenna village on Abemama in central Kiribati.

Changing climate¹⁰

Annual and seasonal maximum and minimum temperatures have increased steadily in Tarawa since the 1950s, with maximum temperatures having increased at a rate of 0.13°C per decade. These temperature increases are consistent with the global pattern of warming.

Rainfall data in the current climate shows a high degree of variability across Kiribati, with a clear increasing trend in wet season rainfall in Kiritimati, but no clear trend at Tarawa. Indeed, there has been substantial variation in rainfall from year to year at both sites since the 1940s. The risk of major disruption to Pacific rainfall due to El Niño–Southern Oscillation (ENSO) variability has already increased, and this risk increases further this century, even if global warming is restricted to 2°C (Cai et al, 2015; Power et al 2017; Wang et al 2017). More specifically according to Liu et al (2017), climate change is driving increased variability in the Central Pacific ENSO, including hydrological impacts, and it is plausible that the extreme ENSO events of the first two decades of the 21st century will continue. Climate change will thus bring a more extreme and unpredictable climate to the communities in Kiribati.

Other impacts of climate change include increasing sea-level rise. As ocean water warms it expands causing the sea level to rise. The melting of glaciers and ice sheets also contributes to sea-level rise. Satellite data indicate the sea level has risen across Kiribati by 1–4 mm per year since 1993, compared to the global average of 2.8–3.6 mm per year. It is also noted that sea-level rise naturally fluctuates from year to year and decade to decade as a result of phenomena such as the El Niño–Southern Oscillation.

Ocean acidification has also been increasing in the Pacific, including around Kiribati. About one-quarter of the carbon dioxide emitted from human activities each year is absorbed by the oceans. As the extra carbon dioxide reacts with sea water it causes the ocean to become slightly more acidic. This impacts the growth of corals and organisms that construct their skeletons from carbonate minerals. These species are critical to the balance of tropical reef ecosystems, and coral reefs also provide critical protection from coastal erosion and inundation due to storm events and wind-driven waves. Data show that since the 18th century the level of ocean acidification has been slowly increasing in Kiribati's waters.

Future climate¹¹

Projections for all greenhouse gas emissions scenarios indicate that the annual average air temperature and sea-surface temperature will increase in the future in Kiribati. By 2030, under a very high emissions scenario (so-called 'business as usual'), this increase in temperature is projected to be in the range of 0.5–1.2°C. Later in the century the range of projected temperature increase under the different scenarios broadens. Increases in average temperatures will also

¹⁰ PACCSAP, 2015

¹¹ PACCSAP, 2015

result in a rise in the number of (temperature extremes) hot days and warm nights and a decline in cooler weather (see Table 1 for the Gilbert Islands).

Table 1. Projected changes in the annual average surface air temperature for Kiribati

Gilbert Islands	2030 (°C)	2050 (°C)	2070 (°C)	2090 (°C)
Very low emissions scenarios	0.4-1.0	0.6-1.5	0.5-1.4	0.6-1.5
Low emissions scenario	0.4-1.2	0.6-1.7	0.8-2.1	1.1-2.5
Medium emissions scenario	0.4-1.0	0.7-1.6	0.9-2.3	1.1-2.9
Very high emissions scenario	0.6-1.2	1.0-2.2	1.5-3.5	2.1-4.5

Note: Values represent 5-95% of the range of the models and are relative to the period 1986-2005.

Almost all of the global climate models project an increase in average annual and seasonal rainfall over the course of the 21st century. This increase is projected to be greater in the Gilbert Islands and lower in the Line Islands. However, there is some uncertainty in the rainfall projections and not all models show consistent results. Droughts are projected to become less frequent throughout this century and projections show extreme rainfall days are likely to occur more often and be more intense.

Sea level is expected to continue to rise in Kiribati. By 2030, under a very high emissions scenario, this rise in sea level is projected to be in the range of 7–17 cm (see Table 2 for the Gilbert Islands). The sea-level rise combined with natural year-to-year changes will accentuate the impact of storm surges and coastal flooding. As there is still much to learn, particularly how large ice sheets such as Antarctica and Greenland contribute to sea-level rise, scientists warn larger rises than currently predicted could be possible.

Table 2. Sea-level rise projections for Kiribati

Gilbert Islands	2030 (cm)	2050 (cm)	2070 (cm)	2090 (cm)
Very low emissions scenarios	7-17	13-29	18-44	23-59
Low emissions scenario	7-16	13-30	20-47	27-66
Medium emissions scenario	7-16	13-29	19-46	28-67
Very high emissions scenario	7-17	16-33	26-56	38-87

Note: Values represent 5-95% of the range of the model results and changes are relative to the average of the period 1986-2005.

According to the Pacific Regional Environment Programme (SPREP), two small uninhabited Kiribati islets – Tebua Tarawa and Abanuea – disappeared underwater in 1999. The recent Intergovernmental Panel on Climate Change’s *Global warming of 1.5°C* special report, predicts that increasing warming amplifies the exposure of small island, low-lying coastal areas and deltas to the risks associated with sea level rise for many human and ecological systems, including increased saltwater intrusions, flooding and damage to infrastructure (IPCC 2018).

Under all four emissions scenarios the acidity level of sea waters in the Kiribati region will also continue to increase over the 21st century, with the greatest change under the very high emissions scenario. The impact of increased acidification on the health of reef ecosystems is likely to be compounded by other stressors including coral bleaching, storm damage and fishing pressure.

Climate Change impacts and habitability of low-lying atolls¹²

The key climate features and variables that will particularly impact on the habitability of Kiribati as a result of climate change are:

- Changes to large-scale drivers of climate variability for the islands of Kiribati, particularly more extreme swings of ENSO and an intensification of the rainfall associated with ENSO, and possible shift in the position of the South Pacific Convergence Zone (SPCZ), which can alter the patterns of rainfall and drought, and bring extreme weather and more frequent intense and damaging rainfall events (CSIRO et al 2015);
- Increased sea surface temperatures (SSTs) and ocean acidification levels which combined will stress the coral reefs, marine ecosystems and the ecosystem services they provide which are critical to the habitability of the islands (Lenton et al 2018; Evenhuis et al 2015);
- Nonlinear interactions between sea-level rise and wave dynamics, including from distant-source waves, will lead to island overwash and severe inundation in low-lying communities of Kiribati and other low-lying Pacific atolls (Storlazzi et al 2018); and
- More extreme temperature events (BOM and CSIRO 2014), which will, directly and indirectly, impact on food and water security and human health (WHO 2015).

The IPCC (Nurse et al 2014) finds that “extreme events superimposed on a rising sea level baseline are the main drivers that threaten the habitability of low-lying islands as sea levels continue to rise”. Up-to-date research points to damaging annual wave-driven overwash events by 2050, particularly under higher sea level rise scenarios (Storlazzi et al 2018). This has urgency for low lying Pacific atolls such as Kiribati as country populations are coastal, and inland retreat is not an option.

Damage from overwash and inundation will affect infrastructure, crops, gardens and fresh groundwater, and be too frequent for groundwater lens recovery. Where human activities have significantly stressed the coral reef ecosystems or the resources that underpin food and water security, environmental thresholds for habitability may be passed earlier due to the effects of climate change. This has relevance for small atoll nations such as Kiribati where the inland retreat is not an option.

Climate change will further challenge the water security goals of Kiribati as increases in temperature lead to increased demand, more frequent extreme rainfall events damage supply infrastructure, and rising sea levels and wave events lead to salt-water impacting on groundwater sources (White and Falkland 2010; Kinrade 2014). Storm-surge or wave-driven overwash is now recognised as a growing risk to groundwater lenses with rising sea levels, and research shows that lens recovery may take many months or years (Terry and Falkland 2010). A detailed PACCSAP study of the vulnerability of the Bonriki freshwater lens in Kiribati found that inundation from extreme events will impact the lens that requires 2-5 years for recovery depending on rainfall, but that threats from over-extraction and low rainfall recharge are more critical to the condition of the lens (Mack 2015).

¹² PACCSAP, 2015

The combined impacts of natural climate variability and climate change on extreme temperatures and rainfall variability will likely further stress natural resources and livelihoods of local communities, particularly in terms of water security and sanitation issues, in the outer islands.

Notwithstanding these impacts and associated modifications, the physical integrity of atoll islands more generally in the Pacific are however expected to be maintained through this century, and for some possibly increase in size as weakened and eroded coral reefs provide sediment for island-building. Dynamic changes to shorelines will occur in this timeframe, often including both accretion and erosion in one island, particularly on small, unconsolidated elongated islands and where communities have 'hardened' the coastline or removed rubble for construction purposes.

Knowledge of island landform resilience, together with likely physical climate change impacts, and thresholds of habitability informs development and adaptation in these islands. On-ground adaptation action to build climate resilience in the atoll islands has been very limited to date, and there is urgency now to enhance adaptive capacity and governance, as well as for integrated (rather than piecemeal) and long-term measures. Delayed action will only result in even more complex challenges being faced by mid-century, with increased impacts and higher costs of interventions.

Water Resources

Water supply issues in the Republic of Kiribati are amongst the most complex in the world. The vulnerable, limited and scattered water resources supply more than 160 villages and two densely populated and growing urban areas¹³. In most islands, freshwater is limited, demand is increasing, and the quality is deteriorating under the pressure of human activities, and the uncontrolled presence of animals. Droughts are common and freshwater is often scarce, so water resources have to be protected and used carefully¹⁴.

The absence of lakes and rivers makes Kiribati dependent on rainfall to maintain supplies of fresh water for the health and well-being of its citizens. Fresh water supplies to Outer Island households are already a growing cause for concern that the government is eager to address¹⁵. Households rely on groundwater and rainwater harvesting to provide for their daily water needs including drinking, cooking and washing¹⁶.

Thin lenses of fresh groundwater floating over seawater comprise the major source of fresh water in Kiribati. Groundwater is extremely vulnerable to frequent El Nino Southern Oscillation (ENSO) related droughts, and salinization due to extreme sea-level events and sea-level rise¹⁷. The quality of the groundwater lens with respect to salinity depends on precipitation and the width of the land. Climate change will affect precipitation and the width of the land through erosion and accretion and these, in turn, determine the availability of the lens. The northern atolls have higher rainfall than those at the south, but the more southerly islands tend to be wider. Additional

¹³ National Water Resources Policy 2008, Government of Kiribati

¹⁴ Ibid

¹⁵ Kiribati has one of the highest rates of under-five mortality and diarrhoea in the region, mostly affecting children. Water-borne diseases are increasingly common, especially among the elderly, the young and other susceptible population groups. Diarrhoeal diseases are endemic, outbreaks of typhoid occur annually, and the country has the highest infant mortality rate in the Pacific region (National Sanitation Policy 2010).

¹⁶ Of the 11 outer islands in the Gilbert Island chain considered under this proposal, 3,466 households rely on well or groundwater and 950 households rely on rainwater for their main source of drinking water (2015 Census)

¹⁷ UNICEF 2014, 'Harvesting Rainwater to Improve Access to Safe Drinking Water and Adapt to Climate Change: Spotlight on Kiribati', UNICEF

characteristics of atolls that affect the quality of the groundwater lens include geo-physical and biological aspects of land formation which vary from site to site.

Some villages are located on sites that do not have ground water lenses, either because the land is too narrow, or the water lens is very polluted as is the case on South Tarawa. On outer islands various water systems have been tried in the past. The most common water supply technology is currently solar pumps and overhead tanks near the villages. The costs of installing and maintaining such systems may limit their application to certain villages and atolls. Furthermore, many i-Kiribati in the outer islands live predominantly in traditional houses with thatched roofs, they have not been used to collecting rainwater for their domestic water supply and rainwater harvesting and storage remains an under-utilized option to provide access to safe drinking water¹⁸.

The growing impacts of human settlements and those of climate variability and change on freshwater resources and the linkage between development, poverty alleviation and water availability require a commitment by the community and continued determination and leadership by the national government to protect and use wisely the nation's scarce water resources¹⁹. An integrated and coordinated whole-of-government approach is required that engages communities, clearly specifies responsibilities and accountabilities and encourages and directs actions from the village through the island to the national level²⁰.

Sanitation and Hygiene

The lack of proper sanitation and toilet facilities contributes to the contamination of ground water as toilets, have in many cases, being built poorly and too close to water sources. Unsafe hygiene and sanitation practices are causing contamination of tank water, ground water and lagoon water. The consumption of contaminated water has led to serious health problems for those living in the outer atolls.

Ending open defecation has been identified as a top priority for reducing global inequalities in WASH and is explicitly referenced in SDG target 6.2. Between 2000 and 2017, open defecation rates declined in all SDG regions except Oceania²¹. In 2015, 40 percent of the population of Kiribati had access to improved sanitation with 36 percent defecating in the open²². Figures for 2018 continue to highlight Kiribati as having the highest open defecation rate in the Pacific with 28 percent²³ of the population practicing open defecation. In rural areas and the outer islands, the rates are even higher – open defecation is practiced by nearly half of the rural population (49 percent) and by more than 70 percent in some outer islands²⁴.

Kiribati has unique challenging physical and social environments which significantly affect achievement and sustainability water and sanitation interventions. For example, open defecation in the ocean or on the beach is a deeply entrenched social norm on all Outer Islands. In the village lifestyle, open defecation is not only socially acceptable, but it is a social activity. There are also the issues of distance and remoteness. The country is made up of 33 small islands and coral

¹⁸ UNICEF 2014, 'Harvesting Rainwater to Improve Access to Safe Drinking Water and Adapt to Climate Change: Spotlight on Kiribati', UNICEF

¹⁹ National Water Resources Policy 2008, Government of Kiribati

²⁰ Ibid

²¹ WHO 2017, *Progress on drinking water, sanitation and hygiene: Updates and SDG baselines*, WHO and UNICEF

²² UNICEF/WHO Joint Monitoring Programme data (2015)

²³ World Bank 2018, <https://data.worldbank.org/indicator/SH.STA.ODFC.ZS>

²⁴ ADB 2014, *Economic Costs of Inadequate Water and Sanitation Report*, Asian Development Bank

atolls spread out across a distance greater than the width of India. Getting the right technical expertise to the Outer Islands is a challenge due to their remoteness, infrequent boat and flight schedules and the cost and time required to visit these islands. Continuous monitoring, follow-up and verification are critical to sustaining behaviour change, however this is not easy to do in Kiribati.

The most serious challenge is posed by the relationship between sanitation and drinking water. The usual logic in community-led total sanitation (CLTS) is that stopping open defecation helps protect drinking water sources, but in Kiribati stopping open defecation by building and using toilets can actually harm drinking water sources. Many people living in coral atolls rely on shallow groundwater reserves to provide drinking water. These lenses are very fragile and with porous coral soils, pollutants from human waste and other sources easily enter the groundwater lens, threatening public health.

Raising awareness of the risks of pit latrines and pour-flush toilets has had an unintended consequence. The people who built toilets in the early stages of CLTS in Kiribati have since learnt that they are contributing to ground water pollution. Many stopped using their toilets and reverted to open defecation. Although the extent is not yet measured, the wrong sanitation solution has caused slippage in open defecation free (ODF) achievements. In Kiribati there are few right choices for sanitation. UNICEF have trialed dry latrines in some outer islands (e.g. Kuria) and promote this as the only option²⁵.

Finding a technology that is affordable, and acceptable to communities' demands and preferences is problematic. Whilst there has been interest in composting toilets as a solution, experiences from the KIRIWATSAN project highlight community acceptance and usage of composting toilets remains a challenge.

Another difficulty is that common, basic water quality testing methods such as detection of faecal indicator bacteria (e.g., *E. coli*) and nutrients such as nitrates cannot distinguish between human and animal contamination sources (as well as any other potential non-animal contamination such as refuse dumps). Relying on these basic water quality parameters can make it difficult to identify high-risk contamination sources such as human faecal contamination, as well as complicating any remediation activities to reduce or remove contamination of water. There is a need to gain a better understanding of the sources of contamination of the fresh water on the islands of Kiribati. Improved data will not only enable the authorities to develop better processes to control water quality on the different island, but also help inform the local island communities so they understand where contamination is coming from and they can therefore, be active participants in developing mechanisms to remove or relocate these contamination sources away from at-risk freshwater sources.

Addressing water and sanitation issues has therefore been identified as being essential in improving the living standards and health of i-Kiribati, as well as being necessary for development and poverty alleviation throughout the nation.

Project focus area

The original concept note submitted to the Adaptation Fund Board in October 2018 indicated the project would increase the resilience to climate change of 50 villages in 11 of the outer islands of Kiribati within the Gilbert Islands (Figure 4) by targeting water, health and sanitation sectors.

²⁵ <https://www.communityledtotalsanitation.org/country/kiribati>

Detailed consultations with national and island stakeholders and with staff of previous projects operating across these sectors in the outer islands, has illustrated a need for a reduction in the scale and scope of the proposal under the Adaptation Fund.

This Adaptation Fund project will focus on three of the outer islands to ensure an effective and realistic implementation and project outcomes. The islands and villages to be included in the Adaptation Fund project will be determined by the Government of Kiribati during the inception phase²⁶ (Refer Table 3). Possible guidance for determining the focus islands under the Adaptation Fund grant will include factor such as: inclusion of different types of islands; rainfall focus; consideration of scale; vulnerability of islands; lack of available scientific-based evidence; potential for success; degree of risk and; previous projects implemented.

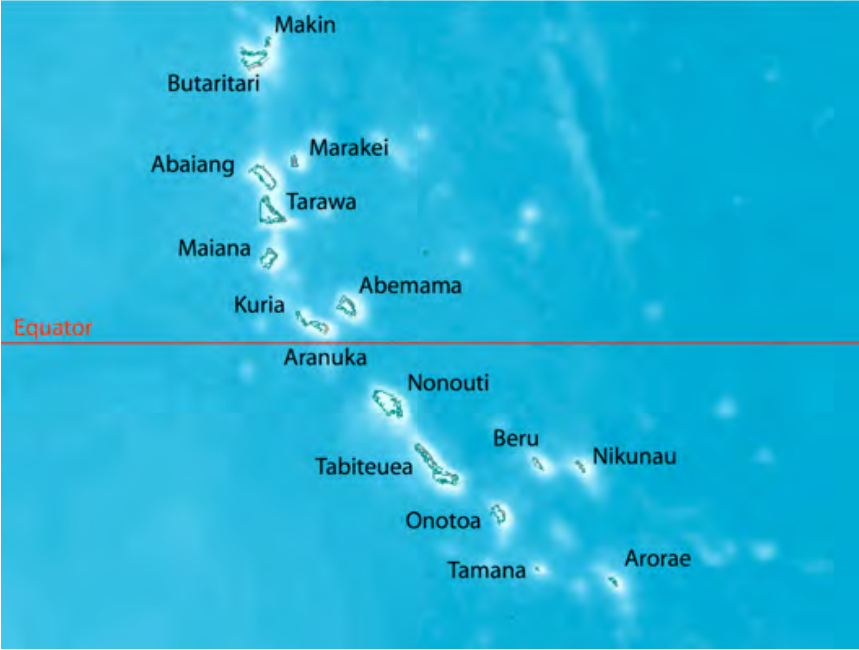


Figure 4. Outer Islands in the Gilbert Group, Kiribati

Table 3. Outer islands and villages identified as possible recipients of the AF project

Island	Villages Identified
MAKIN	Makin
BUTARITARI	Kuuma, Keuea, Tanimainiku, Tabonuea, Taubukinmeang, Temanokunuea, Onomaru, Ukiangang
MARAKEI	Rawannawi, Temotu, Buota, Bwainuna, Norauea, Antai
ABAIANG	Nuotaea, Takarano, Ubwanteman, Borotiam, Koinawa, Morikao, Taburao, Tebero, Tabwiroa, Tanimaiaki, Tebwanga, Aoneaba, Tabontebike
MAIANA	Tekaranga, Tebwanga, Tebwangetua, Teitai
NONOUTI	Benuarua, Teuabu, Temanoku, Rotuma, Autukia, Temotu
BERU	Rongorongu, Eriko, Taboiaki
NIKUNAU	Manriki, Tabomatang
TAB SOUTH	Tewai, Taungaeaka, Buariki, Nikutoru, Katabanga, Takuu
ONOTOA	Tekawa, Tanaeang, Buariki, Temao, Otoae, Aiaki, Tabuarorae
KURIA	Oneeke, Marenaua, Tabontebike, Buariki, Norauea, Bouatoa

²⁶ These villages and islands are referred to in this proposal as the “targeted” villages and islands

Whilst the number of islands and villages will be reduced in this project, recent discussions with the Green Climate Fund (GCF) in August 2019 have indicated the potential of co-funding for the remaining islands and villages through a GCF grant. A GCF proposal would align with this Adaptation Fund proposal and enable the scaling up of activities across the remaining eight islands and villages indicated in the original concept note.

This scaled approach to ensure the outer islands are equipped with access to water and sanitation is outlined in Figure 5. The proposal enables:

1. Acknowledgement of the lessons learned from previous projects including the need to be cognizant of the operating environment in terms of cost and challenges of working in these sectors in remote and geographically challenging environments.
2. Will enable the original intent of all 11 islands and 50 villages to have access to safe water and sanitation.
3. Will enable a staged approach in which the evidence-base needed to assess the water resources and future climate projections will determine options for water resources across each of the islands.
4. Enable piloting of water and sanitation options prior to scaling up across the islands.
5. Enables the project to incorporate lessons learned from the activities into both the implementation under the Adaptation Fund and into the scaling up of activities under the Green Climate Fund.

Overall, this approach aims to bring about the transformation needed to provide the outer islands with sustainable, long-term access and use of safe water and culturally appropriate sanitation facilities in the face of climate change impacts.

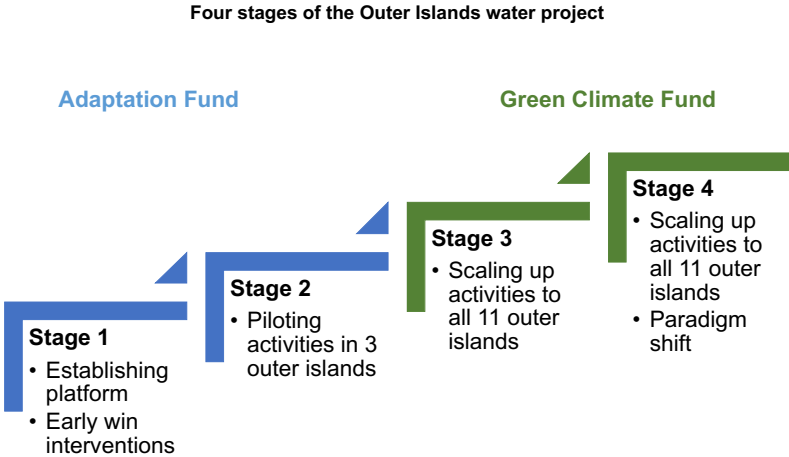


Figure 5. Scaling-up approach under the AF and GCF

Lessons learned and reflected in the Project design

The ‘Enhancing the resilience of the outer islands of Kiribati’ project builds on the lessons learned from a number of precursor projects including: Kiribati Water and Sanitation Project (KIRIWATSAN), Phase I and II; USAID Abaiang Drought Management Plan; Water Supply Improvement Project (Kiritimati) and; Outer Islands Community Water Supply Project.

A number of distinctive experiences and recommendations from these projects have been considered and have either guided the development of the plan, or being captured in the project design, complementing the lessons and information garnered by the project planning team through consultations with both national government and outer island communities during the planning phase. These relate to experiences in scale and scope of projects, stakeholder engagement and consultations, infrastructure design and construction, capacity building, information and knowledge sharing, and behavioural change relating to water safety and sanitation and hygiene. Key lessons acquired from previous project experiences and incorporated into the Project design are referred to in Annex A.

Project Beneficiaries

The Project recognises the complexity of working in the outer islands of Kiribati, and the requirement to be cognisant of and work through the formal coordination and decision-making mechanisms. Whilst the primary beneficiaries of the project will be the local communities in the target islands and villages (see below), there is a need to engage and coordinate the project implementation through the established outer island governance processes to ensure respect for island culture. It follows this will require targeted engagement by the project with a series of secondary (or 'intermediate') beneficiaries who will be the target users of the Project outputs in the first instance. They will be the agents advocating practice change by local communities and their role is crucial for the project to successfully address its stated objectives.

The project will facilitate:

- i. Mainstreaming of new evidence-based decision-making processes to inform planning and management of water resources and sanitation practices in the outer islands, and
- ii. More effective ownership and uptake of the project outputs by local communities, thereby ensuring a sustainable path-to-impact for the project investment over the longer term.

Island coordination process

The project team will engage with, and coordinate the implementation of activities, through the established decision-making mechanisms on each island (Figure 6) as detailed in the Community Engagement Plans (Activity 5.2). In all cases, the formal decision-making mechanism will be the Island Councils, established under the Local Government Act 1984. The Island Councils are elected every four years by registered electors for any ward of an electoral district constituted by the provisions of the Elections Ordinance 1977 which lies within the area of authority of the Council. Each ward is represented by a Councilor elected by that ward. The Mayor is elected from among the Councilors by the Whole Islander electoral district. The Island Councils also include representatives of the *unimwane* (old men) and have established a rotating seat for either a woman or youth representative.

The Island Councils are overseen by the Ministry of Internal Affairs and engagement with the outer islands must be arranged through the Local Government Division who will also facilitate the logistics for outer island meetings i.e. meeting with Island Councils. The Ministry of Internal Affairs will be represented on the Project Steering Committee and be expected to report on any issues or feedback from the outer islands concerning this project through this mechanism and directly to the project management unit.

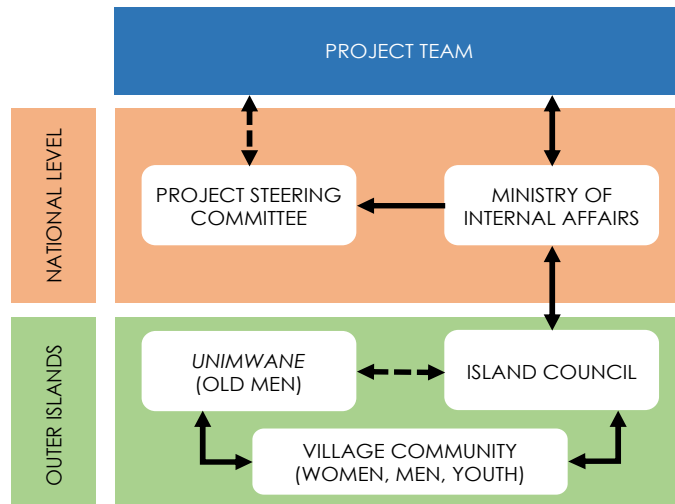


Figure 6. Overview of the project engagement process with decision-makers at the national and island level to undertake implementation in the outer islands

Once permission has been established to operate at the island and village level, and an agreed-to mechanism established with the Island Councils and *Unimwane* on how the project members will work directly with the collaborators / partners and primary beneficiaries, this will be reflected in the Community Engagement Plans.

Beneficiaries

Whilst there are various beneficiaries who will be impacted by the project, both directly during implementation and indirectly over the medium to longer-term, (see below), it is envisaged all information and resources will be made available for dissemination and access by the Executing Agency / Project Management Unit to any interested stakeholder as required. As previously stated, the primary beneficiaries of the project are the Government of Kiribati and the local communities in the outer islands. This is based on the end-of-project outcomes:

1. Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate.
2. Joint decision-making between the Government of Kiribati and Island Councils to determine water facilities based on evidence.
3. Practices of the Government of Kiribati and outer island communities are consistent with the protection and, sustainable and equitable use of water.
4. Village-led, culturally appropriate, sanitation facilities are in use in the targeted sites.

Three core groups of beneficiaries have been identified who will be impacted by the project over the short-medium term (within the term of the project), and over the medium-longer term (within and beyond the term of the project):

1. **Direct project partners** who will advocate for behavior change among primary beneficiaries. These partners will be directly involved operationally in the delivery of the project working closely with the project team. They include Old men (*unimwane*), Island councils, water technicians, and island-level groups and organisations (women, youth and

church groups); Government of Kiribati staff from key ministries (Ministry of Internal Affairs; Ministry of Infrastructure and Sustainable Energy; Ministry of Women, Youth and Social Affairs; Ministry of Health; Ministry of Environment, Lands and Agricultural Development).

2. **Primary Beneficiaries in Island villages^[1]**: The island villages consist of a number of social groups - women, men, youth, elderly, vulnerable. All of these social groupings are considered primary beneficiaries of the project through: (i) receiving benefits from the installation of water and sanitation infrastructure and / or; (ii) receiving benefit from collaborating directly with the project on the implementation of activities (e.g. designing and testing sanitation solutions; constructing and maintaining facilities) and / or; (iii) receiving information or training from the project (see table below).
3. **Government of Kiribati**: The Government of Kiribati will be a beneficiary of the project through a number of mechanisms: (i) the outcomes directly assist the Government in achieving the KV20 goal; (ii) Ministries will have access to scientific knowledge on a range of issues e.g. climate change projections, coastal inundation, water resource assessments which can be utilised in future planning processes and; (iii) a number of Ministries (MISE, KMS, MoH) will benefit directly from capacity building and training.

Population by sex at Island and Village level

Island	Village	Popn	Male	Female	Total / Island
Makin	Makin	1,535	782	753	753
Butaritari	Kuuma	290	134	156	2,451
	Keuea	202	89	113	
	Tanimainiku	216	110	106	
	Tabonuea	253	125	128	
	Taubukinmeang	235	122	113	
	Temanokunuea	396	186	210	
	Onomaru	280	147	133	
	Ukiangang	579	284	295	
Marakei	Rawannawi	1,033	514	519	2,245
	Temotu	155	83	72	
	Buota	293	146	147	
	Bwainuna	279	134	145	
	Norauea	321	156	165	
	Antai	164	80	84	

^[1] In the outer islands, there consists villages and wards. In most cases, the term 'village' is used to denote the number of wards. For consistency, the term village will be used here and will directly correlate to the villages / wards outlined in Table 3.

Island	Village	Popn	Male	Female	Total / Island
Abaiang	Nuotaea	510	251	259	3,472
	Takarano	310	151	159	
	Ubwanteman	119	51	68	
	Borotiam	375	190	185	
	Koinawa	326	158	168	
	Morikao	194	90	104	
	Taburao	268	137	131	
	Tebero	252	139	113	
	Tabwiroa	146	68	78	
	Tanimaiki	354	162	192	
	Tebwanga	333	174	159	
	Aoneaba	30	13	17	
	Tabontebike	255	123	132	
Maiana	Tekaranga	144	70	74	564
	Tebwanga	236	118	118	
	Tebwangetua	109	60	49	
	Teitai	75	33	42	
Nonouti	Benuaroa	171	85	86	1,391
	Teuabu	266	132	134	
	Temanoku	273	141	132	
	Rotuma	397	204	193	
	Autukia	121	54	67	
	Temotu	163	90	73	
Beru	Rongorongo	188	98	90	752
	Eriko	212	112	100	
	Taboiaki	352	170	182	
Nikunau	Manriki	184	95	89	253
	Tabomatang	69	33	36	
Tab South	Tewai	311	156	155	1,306
	Taungaeaka	158	81	77	
	Buariki	455	236	219	
	Nikutoru	155	77	78	
	Katabanga	76	41	35	
	Takuu	151	81	70	
Onotoa	Tekawa	145	77	68	1,393
	Tanaeang	189	105	84	
	Buariki	183	90	93	
	Temao	279	138	141	
	Otoae	164	82	82	
	Aiaki	227	127	100	
	Tabuarorae	206	111	95	
Kuria	Oneeke	189	93	96	1,046
	Marenaua	209	104	105	
	Tabontebike	103	53	50	
	Buariki	129	76	53	
	Norauea	276	136	140	
	Bouatoa	140	73	67	
Total		16,408	8,231	8,177	

Project / Programme Objectives

The Project responds directly to the Government of Kiribati's KV20 vision for all Kiribati households to have access to potable water and suitable sanitation facilities by 2036. In contributing towards this broad vision, the Project has two core **objectives**:

1. People in the targeted villages in the outer islands have equitable access to water facilities.
2. People in the targeted villages in the outer islands are; (a) using the facilities and, (b) trained in the maintenance of the facilities.

These objectives will be achieved through the four complementary end-of-project outcomes and six intermediate project outcomes:

End-of-Project Outcomes:

1. Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate.
2. Joint decision-making between the Government of Kiribati and Island Councils to determine water facilities based on evidence.
3. Practices of the Government of Kiribati and outer island communities are consistent with the protection and, sustainable and equitable use of water.
4. Village-led, culturally appropriate, sanitation facilities are in use in the targeted sites.

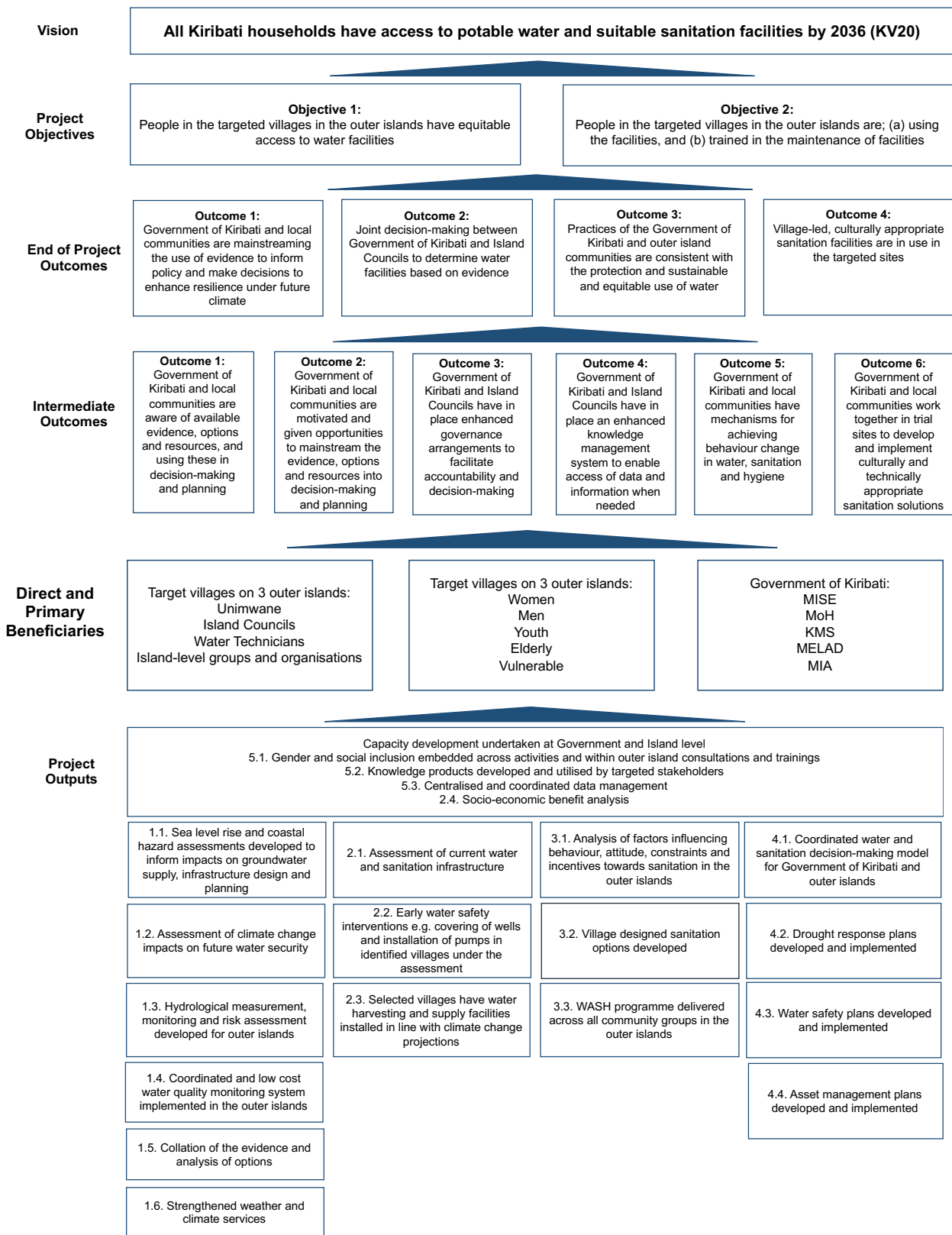
It is recognised a series of interim steps and monitoring 'markers' will be required to evaluate the success of the project against these end-of-project outcomes. Intermediate project outcomes will assist the project team to determine whether the project is on track to meet the project goals.

Intermediate Project Outcomes:

1. Government of Kiribati and local communities are aware of available evidence, options and resources, and using these in decision-making and planning
2. Government of Kiribati and local communities are motivated and given opportunities to mainstream the evidence, options and resources into decision-making and planning
3. Government of Kiribati and Island Councils have in place enhanced governance arrangements to facilitate accountability and decision-making
4. Government of Kiribati and Island Councils have in place an enhanced knowledge management system to enable access of data and information when needed
5. Government of Kiribati and local communities have mechanisms for achieving behaviour change in water, sanitation and hygiene

6. Government of Kiribati and local communities work together in trial sites to develop and implement culturally and technically appropriate sanitation solutions

The results framework for the proposed project is presented in Figure 7 below.



Risks

- Continuity of personnel
- Loss of key personnel train people; they move
- Change of government priorities
- Political interference and lack of transparency
- Decision-making politics
- Contracts: delivery needs to be timely, good quality
- Financial risk of underbudgeting activities
- An experienced and capable PCU is not established
- A major natural disaster or weather related events provide set backs to the project
- High/increasing transport costs
- A severe drought over the lifetime of the project would shift priorities during the project and change the baseline
- Plans may take four years to prepare - this could lead to drops in motivation

Assumptions

- Community engagement can be completed during the scoping phase
- Transportation can be organised and implemented in an efficient and timely manner
- All communities want WATSAN and will welcome the project
- It will be possible to do interventions (the evidence may indicate that nothing will work)
- The project is able to identify the factors that could derail infrastructure
- The Project will have sufficient flexibility to be able to correct course
- The Project team will have the political/social nous needed for a complex project
- The project will be able to maintain motivation of the team over time despite the difficult working conditions
- The project will be scaled up through other funding sources
- The early interventions identified for the project (e.g. covering wells, putting in emergency water storage tanks) are achievable
- Communities want to and will be actively engaged in training
- Suitable technology is available: rainfall gauges, LIDAR- telemetry ocean buoys
- Capacity to prepare plans and do the assessments exists in Kiribati
- Assumption that existing national plans will be implemented
- Communities need the plans now but it may take four years to prepare them (risk) – this could lead to drops in motivation (mitigation: this is the reason we need to start with low hanging fruit - to maintain momentum and motivation during the inception/assessment phase of the project)
- Motivation can be maintained over the life of the project

Figure 7. Proposed project results framework

Project / Programme Components and Financing

Project Components	Expected Outputs	Expected Outcomes	Amount (US\$)
1. Establishing the evidence-base for water and sanitation interventions at the island and village level	1.1. Sea level rise and coastal hazard assessments developed to inform impacts on groundwater supply, infrastructure design and planning 1.2. Assessment of climate change impacts on future water security 1.3. Hydrological measurement, monitoring and risk assessment developed for outer islands 1.4. Coordinated and low-cost water quality monitoring system implemented in the outer islands 1.5. Collation of the evidence and analysis of the options 1.6. Strengthened weather and climate services	Outcome 1: Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate	3,748,680
2. Water harvesting and supply systems in the outer islands	2.1. Assessment of current water and sanitation infrastructure 2.2. Early water safety interventions e.g. covering of	Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence	1,892,550

	<p>wells and installation of pumps in identified villages under the assessment</p> <p>2.3. Selected villages have water harvesting and supply facilities installed in line with climate change projections</p> <p>2.4. Socio-economic benefit analysis</p>		
3. Piloting sanitation approaches in the outer islands	<p>3.1. Analysis of factors influencing behaviour, attitude, constraints and incentives towards sanitation in the outer islands</p> <p>3.2. Village designed sanitation options developed</p> <p>3.3. WASH programme delivered across all community groups in the outer islands</p>	Outcome 4: Village-led, culturally appropriate sanitation facilities are in use in the targeted sites	381,895
4. Coordinated planning for water resource management at Government, Island and Village level	4.1. Coordinated water and sanitation decision-making model for Government of Kiribati and outer islands	Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence	953,635
	<p>4.2. Drought response plans developed and implemented</p> <p>4.3. Water safety plans developed and implemented</p> <p>4.4. Asset management plans developed and implemented</p>	Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water	458,765
5. Facilitating the sustainability of project outcomes into the outer islands and at the national level	<p>5.1. Gender and social inclusion embedded across activities and within outer island consultations and trainings</p> <p>5.2. Knowledge products developed</p> <p>5.3. Centralised and coordinated data management</p>	Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water	961,710
6. Project/Programme Execution cost			796,000
7. Total Project/Programme Cost			9,193,235
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			781,420
Amount of Financing Requested			9,974,655

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	July 2020
Mid-term Review ²⁷	July 2022
Project/Programme Closing	December 2024
Terminal Evaluation	March 2025

²⁷ The Project will be undertaking real-time monitoring and continual evaluation as part of the M&E Plan. Any need for mid-term review will be determined in 2022.

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project Components

This Adaptation Fund project will implement on-the-ground, coordinated adaptation approaches and technologies to water resources and sanitation to assist the Government of Kiribati to achieve the KV20 vision – 100 percent of households in Kiribati have access to potable water and suitable sanitation facilities by 2036. In assisting the Government to meet the targets outlined in the KV20, the project addresses the challenge(s) facing the water and sanitation sector in the outer islands through a ‘stepped approach’ consisting of developing a robust preparation platform (i.e. socially inclusive engagement with Outer Island communities, coordinated planning across villages, islands and government, and investigations on the Outer Islands to develop a strong evidence base for the interventions). Following preparation, implementation of water harvesting and supply systems and the identification and piloting of appropriate sanitation solutions in the targeted islands will take place –achieving the end-of-project outcomes and ultimately leading to a scaling-up of the project approach across all the outer islands in the Gilbert Island chain.

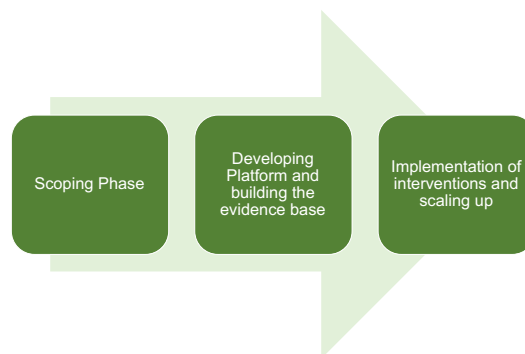


Figure 8. Approach across project phases

In implementing the components and their activities, the project will undertake a phased approach (Figure 8) of (a) scoping and preparation, (b) developing the platform of evidence and, (c) implementation of interventions.

- a. **Scoping Phase:** Learning from previous projects the scoping phase is designed to ensure a more effective implementation roll-out of project activities and enable the project team to undertake a full assessment of the target islands and how the activities will be implemented, as well as fill any gaps.
- b. **Developing the evidence-base and outer island platform for water and sanitation interventions:** This phase will undertake early interventions to secure village water safety i.e. cover wells and install pumps, and install rainwater harvesting systems in drought vulnerable villages. The phase will continue to build the knowledge base needed to determine: (i) which freshwater lenses can be accessed under different climate scenarios; (ii) development of climate change projections and; (iii) the data required to link into the interventions and the community plans i.e. drought response, water safety, asset management. Additionally, engagement with communities will also be undertaken to: (i) develop culturally appropriate sanitation approaches for the outer

islands; (ii) develop behavioural change approaches to address the equitable access, use and maintenance of the water and sanitation facilities.

- c. Implementation of the water harvesting and supply interventions in the outer islands:** The third phase will implement water harvesting and supply interventions in collaboration with the island communities; test the options for sanitation in island communities; undertake the development of drought response plans, water safety plans, and asset management plans; (iv) undertake further training of communities on water, sanitation and hygiene approaches.

The phasing of project activities will enable the complexities and challenges of the project and its operating environment to be fully understood and managed in a coordinated and integrated approach across the many implementing partners and government ministries who will be working together to achieve the project objectives.

Furthermore, the phasing of activities will enable the monitoring of activities and the results and lessons learned from the implementation to be embedded into the next stage of activities and roll-out across the three islands, thereby increasing success in the application and reducing delays. The approach will also allow for the project team to react to any unexpected issues which may arise and provide the time for these issues to be resolved.

This approach is summarised in the theory of change in Annex B. To achieve the approach outlined in the Theory of Change (Annex B), five components have been developed:

- Component 1: Establishing the evidence base for water and sanitation investigations at the island and village level
- Component 2: Water harvesting and supply systems in the outer islands
- Component 3: Piloting sanitation approaches in the outer islands
- Component 4: Strengthening coordination mechanisms for water resource management at Government, Island and Village level
- Component 5: Facilitating the sustainability of project outcomes into the outer islands and at the national level

These Components all play key roles in achieving the project outcomes, illustrating the connectedness and integrative nature of the project approach (Figure 9). Outputs from the evidence-based activities (Component 1) will direct the options for the water and sanitation interventions and approaches (Component 2 and 3). Joint decision-making mechanisms (Component 4) will assist the Government and Outer Islands in determining the optimum options for water harvesting and supply interventions and sanitation approaches. Cross-cutting elements such as gender, knowledge and data management will support engagement activities and delivery of knowledge products and learning.

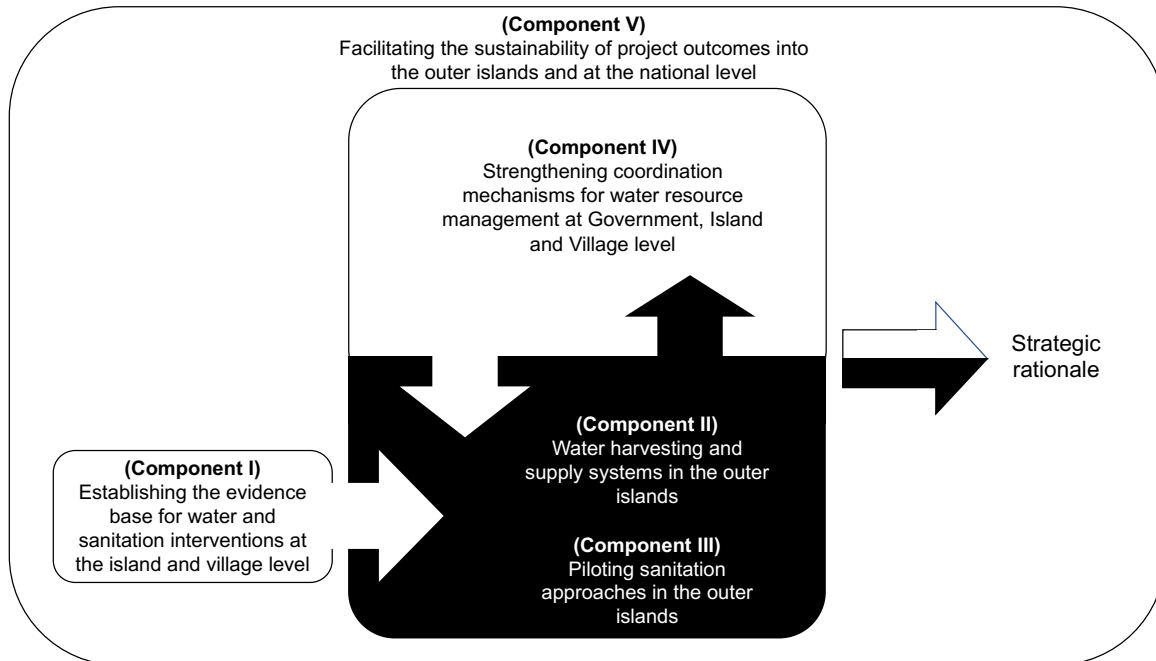


Figure 9. Synergies and linkages between project components

Component 1: Establishing the evidence-base for water and sanitation interventions at the island and village level

Outcome 1: Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate change

To reach the goal of eventually achieving universal water and sanitation access across the populated Gilbert Island chain in Kiribati, there are a number of knowledge gaps that need to be first addressed. These relate in particular to the following questions:

- What are the threats from the progress of climate change and sea level rise on these islands? In particular, what are the risks to water and sanitation from these threats?
- How much water can be extracted from groundwater resources in the Gilbert Islands, now and into the future? To what extent are groundwater resources sustainable in light of population growth and climate change?
- What are the main contamination sources, and the best contamination control measures?
- Which types of water supply options are realistically available on the Gilbert Islands? Are there additional supply augmentation options that should be considered in addition to those that are already being used?
- How can the Government of Kiribati agencies and local communities best monitor and manage the water resources in the islands?
- What is the current state of water and sanitation in the Gilbert Islands?
- Will the intervention suffice to ensure water security in future?

With these knowledge gaps, a sound knowledge base of the sector is essential for informed planning and decisions. Lack of baseline, accessible information, irregular reporting and lack of analysis of information exacerbate the problems. The gaps in knowledge at the country level span many different facets such as hydrology, meteorology, health, water quality, environment, finance, community attitudes, service performance, laws and regulations, and these issues cut across ministerial boundaries. It requires improvements in information systems, better coordination and ensuring that there is free access to information, regular analysis of data and reporting of information. There are significant gaps in knowledge on the quantities of groundwater and rainwater available for use and their quality in urban and rural areas and on Outer Islands. As well, water use patterns by households, businesses and institutions in both urban and non-urban locations are poorly known. In addition, early warning systems to advise governments on extreme climatic events, including droughts need to be built into government planning and operations and into a public communications strategy.

All of the activities in this proposal are connected to achieve the outcomes sought as illustrated in the component connectivity diagram at Annex C.

The design, development and implementation of all activities within this Component will be undertaken collaboratively with the appropriate Ministry personnel and/or local consultants where appropriate and possible. In this way, the project will provide opportunities for formal/informal co-learning, training and mentoring, which in turn will facilitate the potential for sustainability of the project outcomes. Attention to capacity building and project sustainability are among the key lessons acquired from previous project experiences, described earlier, and hence need to be addressed in this Project.

The proposed approach is to conduct activities firstly in one island to facilitate co-learning between project specialists and Government of Kiribati staff / local consultants. Next, the specialists will work together in the second island with emphasis on providing opportunity for “learning-by-doing” training for the locals. Then, the collaborative work will continue on the third island with emphasis on the specialists providing mentoring opportunity to the locals (Figure 10).

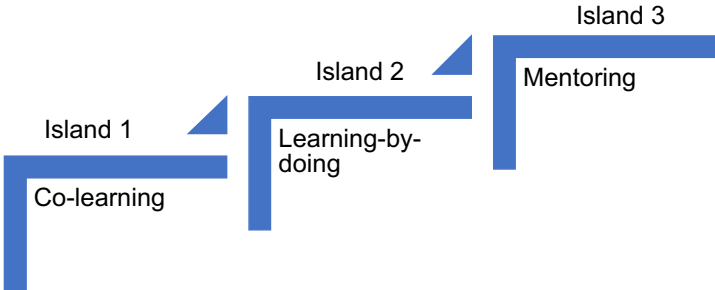


Figure 10. Proposed approach in building the evidence base. The approach facilitates co-learning, 'learning-by-doing' and mentoring

Output 1.1: Sea level rise and coastal hazard assessments developed to inform impacts on groundwater supply, infrastructure design and planning

Activity 1.1. Sea level rise, inundation and erosion hazard assessment and island/reef morphology data collection

The impacts of sea level rise (SLR) and associated risks to infrastructure and water resources will not be uniform. Inundation and erosion events occur through combinations of high tides, high sea level and storm waves/storm surge. There is significant range in sea level variability, tidal range and wave climate throughout Kiribati, and local reef and island morphology determine how these factors combine to create extreme water levels, coastal hazards and associated impacts. Therefore, the islands and villages of Kiribati have a large range in their vulnerability to the impacts of SLR. Detailed local information on tides, local sea level variability and wave climate, as well as bathymetry and topography (morphology) are required to perform local coastal hazard analyses, and appropriately inform estimates of impacts to groundwater supply, infrastructure design and planning.

Tides, sea level variability and wave climate information for Kiribati, as well as SLR projections, were delivered through the Pacific-Australia Climate Change Science Adaptation Planning (PACCSAP) program (CSIRO and BoM, 2014). However, this information is at regional scale, and/or based on tide gauge data from Tarawa and Kiritimati and is not sufficiently detailed to provide an appropriate (village or at least island-scale) evidence-base at other islands. Furthermore, topographic and nearshore bathymetric data has not been collected for the vast majority of islands in Kiribati and is of insufficient accuracy or resolution in most locations where it has been collected.

Activity 1.1 will establish an appropriate evidence-base of current and future inundation and erosion hazards to be utilised in the decision-making for appropriate options for water resource interventions. Sub-activities will include:

1.1.1. Updating and expanding information on tides, sea-level variability and SLR, wind-waves and associated sea-level extremes

Sub-activity 1.1.1. will update and expand information on tides, sea-level variability and SLR, wind-waves and associated sea-level extremes at island scale for all of Kiribati. These analyses will draw upon historical sea level variability, tide and wave hindcasts developed through PACCSAP, including performing statistical and/or dynamical downscaling, and evaluating future changes to these processes, e.g. through the Coordinated Ocean Wave Climate Project (COWCLIP, <https://cowclip.org/>). This sub-activity will also update the SLR projections for Kiribati, currently provided through PACCSAP and based on the IPCC 5th Assessment Report (AR5), to projections based on the 6th Assessment Report (AR6), as they become available.

1.1.2. Collect high-resolution topographic and bathymetric data

Sub-activity 1.1.2. will collect high-resolution topographic and bathymetric data at resolutions appropriate to island and village scale inundation and erosion hazard assessments, at three selected islands in the Gilbert Chain. This will be preferable accomplished through airborne LIDAR surveys, however it is acknowledged the financial and time constraints under this AF grant will not enable this to occur. Therefore, other methods (e.g. satellite remote sensing) will be explored and utilised to achieve a similar result. Part of this data collection will require on-ground surveys for geodetic control at each of the selected islands.

1.1.3. Calculate current and future inundation and erosion hazards

Sub-activity 1.1.3 will calculate current and future inundation and erosion hazards, at the sub-island/village scale, in three selected islands. These analyses will be performed through the synthesis of the extreme sea level information (sub-activity 1.1.1), reef and island morphology information (sub-activity 1.1.2) and state-of-the-art island coastal inundation and erosion prediction methods. These methods will require some level of verification (ground-truthing), either from data collected by wave and water level instrumentation and/or analysis of previous inundation and erosion events.

As part of this sub-activity, wave buoys will be deployed by the Kiribati Meteorological Service (KMS) in the appropriate outer islands to collect the bathymetry data. The deployment of the wave buoys and subsequent data can also inform the development of an inundation early warning system (EWS). Furthermore, the activity will improve the Kiribati Meteorological Service's (KMS) capacity in terms of monitoring and forecasting on coastal inundation risks, contributing to the early warning system. Building the capacity within KMS for on-going coastal monitoring will be developed in conjunction with Activity 1.6.

1.1.4. Facilitate data inputs into a groundwater hydrological model

Sub-activity 1.1.4 will facilitate requisite data inputs from Component 2 into a groundwater hydrological model (Activity 1.4) to assess future viability of freshwater resources on three islands.

These analyses will be synthesized into maps indicating the vulnerability of communities and infrastructure to inundation (coastal flooding) and erosion now and under a range of future climate/sea level rise scenarios for each of the three islands.

Output 1.2: Assessment of climate change impacts on future water security

Activity 1.2. Climate change and impacts assessments

The latest information on current and future climate variability and climate change is available for the national level through the Pacific-Australia Climate Change Science Adaptation Planning (PACCSAP) program (CSIRO and BoM, 2014). However, this information is at regional scale. The report shows that rainfall variability and trends vary with places (e.g. between Tarawa and Kiritimati). There is a need to update and expand this knowledge for the outer islands and use the new knowledge to conduct water resource assessments and developing adaptation measures for the islands as required. The activity will be conducted collaboratively with the relevant Ministry staff (e.g. KMS and MISE) and/or local consultants where appropriate and possible as mentioned previously. Activities to address this need will involve:

- a. **Update existing knowledge** on the historical and future variability, trends and changes for key climate variables (e.g. rainfall, temperature and evapotranspiration) and extremes (e.g. drought) pertinent to sustaining climate sensitive water supply in the outer islands. The analysis will be undertaken building on the approach used in PACCSAP (CSIRO and BoM, 2014²⁸) and the NextGen Climate Projections for the Pacific (CSIRO and SPREP, 2019²⁹) with input from the most updated observed and

²⁸ Australian Bureau of Meteorology and CSIRO (2014). Climate Variability, Extremes and Change in the Western Tropical Pacific: New Science and Updated Country Reports. Pacific-Australia Climate Change Science and Adaptation Planning Program Technical Report, Australian Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation, Melbourne, Australia.

²⁹ CSIRO and SPREP. 2019. NextGen Climate Projections for the Western Tropical Pacific. Resource Document #1: Preliminary Guidance Materials. Unpublished Report, July 2019.

modelled climate data available. The observed data could include those obtained through Activity 2.5 and 2.7 as well as new global/regional reanalysis climate data such as HadCRUT4 (Cotwan and Wa, 2014³⁰) and BARRA (bom.gov.au). A review of existing data and knowledge will be conducted during the scoping phase.

As part of this sub-activity, the project will develop methods/tools for drought assessment specific for the outer islands. To do so, the project will utilize results from Activity 1.3 – 1.6. The developed methods/tools will subsequently be used to update the KMS capability to support the implementation of DRP (refer Activity 1.6).

- b. **Develop and deliver climate change scenarios data sets**, which will be tailored and can be used for climate change impacts and vulnerability assessment, including for water and sanitation assessment for the outer islands. The analysis will use tools/techniques most suitable and robust for the island condition. The project will endeavor to enable the KMS to develop and deliver the same data sets even after the project finish.
- c. **Update rainwater harvesting guidelines based on climate scenarios**: There is a need to undertake analysis of the reliability of rainwater harvesting and appropriate sizing (5kL or 10kL etc) under different (rainfall) climate scenarios. This will be developed and delivered as a spreadsheet tool and in tabular form, to help Government of Kiribati staff to choose an appropriate size of rainwater harvesting system under different conditions, depending on island, number of households serviced, expected usage for water and drinking only or otherwise, etc.
- d. **Assess climate change impacts on future water security**, focusing on the balance between future water supply and water demands, firstly through a rapid assessment approach at island level. The assessment will use the hydrological model developed through Activity 1.5 as well as the WATSAN result from Component 2. Subsequent detailed/micro assessment may need to be undertaken, depending on the results from the rapid assessment. The results will be presented in a fit for purpose formats to inform interventions as appropriate.

Output 1.3: Hydrological measurement, monitoring and risk assessment developed for outer islands

Activity 1.3. Implement a hydrological measurement, monitoring and risk assessment modelling program for the island

Groundwater is the main source of water in the Outer Islands, but there is currently only limited understanding about how much available water there is, and to what extent groundwater is a sustainable and reliable water source under various climate and population growth scenarios. This activity addresses this knowledge gap.

³⁰ Cowtan, K. and Way, R.G. (2014). Coverage bias in the HadCRUT4 temperature series and its impact on recent temperature trends. *Quarterly Journal of the Royal Meteorological Society* 140: 1935-1944.

This activity will be conducted across three islands to be used as 'case studies' before settling on the best hydrological model to be taken forward and applied to other islands at risk of water shortages. This activity requires a step-wise approach involving: (i) a data review, (ii) the establishment of a strategic measurement and monitoring programme (iii) data analysis and interpretation for developing water balances and conceptual models (iv) development of a hydrological risk assessment model and (v) evaluation of 'possible' groundwater extraction rates considering the risk of saltwater intrusion, as well as future climate impacts on recharge.

1.3.1. Undertaking a data review

An extensive review of all previous available data and reports from previous studies is required to identify key data gaps required to be addressed prior to developing a hydrological model for a given island. This exercise will help inform if enough baseline water infrastructure and data exist to practically undertake a water resource assessment, but also for establishing a strategic hydrological measurement and monitoring program required to collate enough data to proceed with building a hydrological risk assessment model. Key data include geological information, groundwater levels, elevation data, hydraulic properties of aquifers, groundwater and seawater chemistry data and climate data (tidal level data, precipitation and evapotranspiration). Therefore, this activity will have a dependency on acquiring data from Activity 1.1 and 1.2.

With particular reference to geological data, if no data is available from existing mapping (no lithological data is likely to exist from installation of groundwater wells), general observations from previous studies indicate the presence of two major geological units, namely surficial, poorly sorted and unconsolidated gravelly-silty coral sands unconformably overlying an older well-indurated, weathered, and moderately fractured and porous limestone. Previous studies by Falkland (2004) suggest for Kiribati islands that unconsolidated Holocene sediments unconformably overlying the more-permeable Pleistocene limestone. The thickness of the unconsolidated sediments and the depth to the unconformity on the more porous limestone is not known with confidence without further drilling of investigation boreholes. However, there are existing assumptions for geological layers already assumed that can be used, as well as information obtained from either existing electromagnetic measurements or new measurements to be undertaking in this project. This activity will also have a dependency for acquiring data from Activity 2.1.1.

1.3.2. Hydrological measurement and monitoring programme

This activity will build on the monthly salinity and pH monitoring programme already established under MISE. Working in conjunction with island water technicians as well as Government of Kiribati staff, a hydrological measurement and monitoring programme will be implemented on three islands. This would involve strategically selecting target groundwater wells to install data loggers for high-resolution (hourly) groundwater level and salinity measurements. This would also include training of the outer island water technicians and Tarawa MISE staff to undertake monthly manual water level measurements using a down-hole electrical water level meter (this is important for ensuring reference values for the data loggers, but also training for a future monitoring programme after the project ceases). In addition, this activity would have dependencies on Activity 2.1.1 where it would both obtain existing measurements but also co-design any further electromagnetic spatial measurements of the thickness of the freshwater lenses and mapping of the freshwater-saltwater interface (FWSWI) that needs to be implemented. The hydrological monitoring program would also need to feed into the development of the Water Safety Plans and any associated water quality monitoring or infrastructure investment as well as from the outputs of Activity 1.4.

This activity would also include some targeted field sampling for general groundwater chemistry, as well as environmental tracers for characterising and quantifying recharge and residence times of groundwater flow. The general chemistry while often routine sampling is often not carried out correctly and should be carried out appropriately to evaluate the changes in ionic composition (i.e. evolution) of the groundwater from the centre of the freshwater lenses towards the FWSWI. The environmental tracer sampling will assist by providing another means of estimating 'long-term' mean annual recharge rates, as well as residence times of groundwater flow from recharge to discharge areas (i.e. the FWSWI).

1.3.3. Data analyses and interpretation for water balances and conceptual models

Desktop analyses of groundwater levels, elevation data, groundwater and seawater chemistry and tidal influences integrated with geological and geophysical data will be undertaken to develop new or refine existing water balances and hydrogeological conceptual models. The occurrence of freshwater underlying atoll islands has been well documented elsewhere (Falkland 2003). Falkland (2003), presented a generally accepted conceptual model for groundwater occurrence in atolls, with the expected position and stratified nature of the freshwater lens relative to basal seawater and the transitional zone.

Water balance estimation will require data from Activity 1.2 including long-term precipitation and evapotranspiration data. Estimates of annual rainfall recharge and available water for Kiribati islands had also been made by previous studies, where a simple relationship between annual rainfall and annual recharge can be made based on water-balance studies on several islands, UNESCO (1991). The first estimate of recharge using data collected from recharge studies for several atolls and coral islands, including Tarawa has derived an empirical relationship between mean annual rainfall and calculated mean annual recharge for several low-lying islands.

The current study will develop a more transparent, consistent and robust methodology for determining the extent of available water resources in on the island, including guidance on:

- A methodology for addressing existing knowledge gaps including: (i) the data review method required to identify new data needs, (ii) which data types (i.e. geology, groundwater level or chemistry, aquifer properties, climate etc.) are worth investing time and dollars acquiring, (iii) a range of methods for estimating the recharge component of the water balance as opposed to a the simple precipitation vs evapotranspiration methods;
- how the amount of available water in the freshwater lens as determined by using groundwater models changes based on changes in cumulative groundwater extraction rates, as well as changes in the water balance due to climatic affects (i.e. reductions in recharge)
- An evaluation of the new estimates of water resources with those previously used (Falkland 2003) as necessary to meet the levels of extractive use (current security of supply and actual use).
- If the water resource does not have a current plan for which the levels of extractive use are not clear, these parameters will be inferred where possible using existing information and any assumptions clearly stated. Inputs to the groundwater model can be varied based on existing data and other assumption so that a range of plausible outputs can be reported. Significant stakeholder engagement would be required with government and locals to determine the best model approach to adopt.

Output 1.4: Coordinated and low-cost water quality monitoring system implemented in the outer islands

Activity 1.4. Implementing a coordinated water quality monitoring framework

Kiribati has some of the highest rates of water-related illness and lack of adequate sanitation and water sources in the Pacific³¹. The main reason for the high rate of illness is the state and lack of protection of the groundwater sources on which most people on the Outer Islands rely. Sound knowledge of the performance of water supply and sanitation systems is critical for informing water management decisions and planning and this requires systematic monitoring, analysis and reporting. Many past water and sanitation projects in Kiribati identified this as a critical element for having sustainable water supply and sanitation systems. However, water related monitoring and analysis activities undertaken by MISE, MELAD and the Ministry of Health have been less consistent in the outer islands than in South Tarawa, with high transport costs and lack of resources noted as key challenges to reaching outer islands.

Apart from the need to provide means that increase and broaden the monitoring of water resources across the islands of Kiribati, another major challenge is that all of the important monitoring is undertaken by different Kiribati Ministries and the data gathered is not stored centrally, or shared, reducing the impact of the sampling undertaken.

As obtaining data and information for baseline and ongoing monitoring requires a coordinated effort across the Ministries responsible for water quality monitoring the project will work with those Ministries to establish the baselines and longer-term water quality monitoring programme to establish a coordinated effort and centralised, on-line information and data repository system.

1.4.1. Assessment of current water quality monitoring and reporting including baseline setting

An initial rapid assessment will be undertaken to assess what is already in place, what coordination mechanisms are in place amongst the responsible Ministries, exploration of how data is collected, analysed, reported and stored, and any gaps in the current structure. This would also include a review of the 'Groundwater and Rainwater Monitoring Guideline' and ascertain its appropriateness to build upon as the framework operating under this Project. Recommendations from the rapid assessment will assist the guidance of the implementation of a coordinated water quality and quantity monitoring framework and the development of a centralised, on-line storage and reporting data repository.

1.4.2. Develop improved evidence on contamination sources and contamination control options

Previous reports have noted there is a persistent water quality issue on the Islands in Kiribati with it being documented that >90% of groundwater wells and rainwater tanks on Abaiang being positive for *E. coli*, a microorganism commonly used to indicate the potential presence of faecal contamination. This has been linked to the contamination via poorly constructed wells, roaming animals on and around the islands, the shallowness of the freshwater lenses, and importantly, the near complete lack of adequate sanitation.

Understanding whether contamination comes from humans or animals can be vital in determining the relative risk. Human faecal contamination is a higher health risk to humans than establishing

³¹ National Sanitation Policy 2010, Government of Kiribati

appropriate mitigation and water safety practices. The detection of *E. coli* in drinking water remains a cornerstone for indicating there is a potential problem. For non-drinking water sources, the detection of *E. coli* is more problematic as there are multiple sources of *E. coli* as this bacterium is present in the intestines of most warm-blooded animals. Thus, in environmental waters the presence of *E. coli* is of limited use to determine water quality risks.

There are now more modern methods becoming developed that are based on the detection of microorganisms that are found only in specific animals. An example is the *Bacteroides* HF183 strain that is only present in human intestines. There are other specific microorganisms for pigs, dogs, birds, goats and many more. These animal-specific microorganisms are termed Microbial Source Tracking (MST) microbes. By detecting one or more of these specific MST microbes in a water source, an improved level of risk from microbial pathogens can be made compared to just the use of *E. coli* (with the risk from contamination by human faeces being the highest).

The other advantage in using MST microorganisms is that new molecular techniques are commonly used which is quicker, more sensitive and has a higher level of accuracy. Recent advances in molecular technologies now means that this detection method can be used in remote locations. The technology to be used in this project in Kiribati is produced by the company Biomeme (<https://biomeme.com/>). This technology is already being demonstrated in remote areas of Africa and other areas. The operational costs are only approximately three times more than the current *E. coli* method used in Kiribati and provide a quantitative result on several organisms rather than the simple presence/absence results obtained by the current coliform testing. The system is simple enough that the procedure should be able to be operated by on-island water technicians. The consumables are also provided in a dehydrated form that does not need sophisticated storage or cooling which can enable longer term storage of consumables which helps with issues relating to infrequent supplies to the outer islands³².

The data of the sources of groundwater contamination along with information on groundwater residence times will be used to develop appropriate Water Safety Plans (refer Component 4) as well as being direct evidence for the local communities on why and how water quality in wells can be protected. This activity will include the following and be undertaken in three targeted outer islands:

- Water quality sampling and testing
- Surveys of physical conditions associated with sampling sites will be evaluated
- Preliminary Water residence and water travel time assessments
- Testing of remote monitoring of targeted water quality parameters
- Development of an on-line Data storage system

Output 1.5: Collation of the evidence and analysis of the options

Activity 1.5. Collating evidence and analysing options for water management

This activity will utilise available evidence to guide what type of options could be used to improve access to safe, equitable and reliable water supply in the Outer Islands (refer Component 2). A risk and reliability-based approach will be adopted for analysing the different options. The activity

³² An additional benefit of the Biomeme real-time PCR system is that it is designed for the results to be uploaded to an internet-based data storage system as well as being easily visualised by local communities. By uploading the data to a centralized, internet-based data storage. Using this as a central pillar that can be used towards the development of a central data site that holds all Kiribati water quality and quantity data

will be undertaken in collaboration with MISE staff and water technicians as much as appropriate and feasible in order to train staff “on-the-job” and later through mentoring.

Options that may require further explorations include: demand management; rainwater harvesting; seasonal pumping strategies; community water supply augmentation; vegetation management; and use of infiltration galleries etc. There is also a need to estimate the amount of water lost through evapotranspiration in order to estimate the benefits of strategies like vegetation clearance on groundwater reserves. Another option would be to use real-time hydrological information to adapt pumping strategies, or to strategically choose locations from which to pump water over distances. All these options will require further explorations before they can be ‘on the menu’ for Component 4.2 - 4.4 (planning), and Activity 4.1 (decision making).

Assessment of options for the improved water supply may include assessment of:

- The potential of the aquifer to accept additional recharge. This will require determining if there is enough storage capacity available during the wet season. This will be done by using information gathered in the Activity 1.3 on water levels and aquifer characteristics.
- The potential for rainwater harvesting to provide reliable and safe water supply, including design guidelines that define the expected level of supply reliability, as a function of tank volume, catchment size, expected demand and available rainfall.
- The potential use of in-stream or flow interruption structures such as check dams and or use of infiltration galleries to enhance recharge. This activity is quite well established for islands (e.g. Dahlqvist et al. 2019) but options may be limited on atoll islands. This will be done in conjunction with Activity 1.3 (Hydrological modelling) when a groundwater model is established.
- The potential for vegetation management or thinning to enhance recharge (e.g. Hejizian et al. 2017). This will be done in conjunction with Activity 1.3 (Hydrological modelling) when a groundwater model is established.
- The potential to conjunctively use rainwater tanks with aquifer recharge to maximise water security on municipal or community buildings. This will be done in conjunction with the climate rainfall analysis.
- The potential for alternative configurations (e.g. centralisation of borefields towards the centre of the freshwater lens) and use of seasonal pumping strategies of the community water supply to maximise water security. This will be done in conjunction with Activity 1.3. Currently much of the pumping is close to the freshwater/saltwater interface. If the pumping could be moved more towards the centre of the freshwater lens there may be large gains not only in water security but also for Activity 1.4 (water quality testing) in terms of groundwater quality and management.

Output 1.6. Strengthened weather and climate services

Activity 1.6. Weather and climate services to strengthen climatic conditions information

Although there are a number of completed and ongoing projects in Kiribati to improve weather and climate data collection to support early warning and climate change adaptation, there remain areas which require further support in terms of improving early warning systems and providing the necessary data to strengthen climate adaptation. Kiribati’s geographical location (i.e. islands scattered across 3.5 million square kilometres of ocean), requires an efficient communication system especially when it comes to real time analysis and transmission of weather, climate and

ocean observed data. The need for improved communication systems is highlighted through a number of Government strategies including the NAPA report (January 2017), the Kiribati Vision 2020 Pillar 2, and Strategy 2 in the KJIP.

Strengthening weather and climate services on the outer islands is challenging due to the lack of systems on these islands integrated with the national system based in South Tarawa. For example, out of the 18 inhabited islands, only five islands have an operational manual station – Tarawa, Butaritari, Beru, Kanton and Kiritimati. These stations report on weather conditions every six hours via vhf radio and email except for the stations on Tarawa and Kiritimati Islands where international airports are located, and part of the requirement is to provide hourly weather updates.

A number of previous projects have provided the funding for procuring and installing a number of automatic weather stations (refer Annex D). For example (i) the LDCF Food Security Project funded and installed three additional automatic weather stations on Maiana, Abemana and Nonouti (ii) the UNDP RESPAC Project agreed to expand the automatic weather station installation to another five islands – Butaritari, Tabiteuea Meang, Nikunau, Arorae and Banaba and (iii) the Atoll Water Security Project provided support in funding the installation of nine datalogger rain gauges on nine selected outer islands in the Gilbert which already have weather stations.

This project will need to ensure reliable and updated information on weather and climate is available to support the strengthening of planning and decision-making in the outer islands of Kiribati, and in determining options on water resource interventions in the islands. The information will also be used to strengthen the coordination mechanisms between the Government and the outer islands, with the data received to be directly linked to the work undertaken on climate projections (Activity 1.2), the drought response plans (Activity 4.2) and the water safety plans (Activity 4.3).

To support strengthening the collection of reliable data and updated weather and climate information in the outer islands, the activity will include:

1. Upgrading at least four of the nine selected datalogger rain gauges to add a cost-effective telemetry system that can transmit real-time rainfall data via either an internet or telephone network. The system is already installed and operational across a number of Pacific Island countries and abroad and has been found to be effective in terms of early detection of possible hazards caused by rain.
2. Equipping the weather forecasting unit within the Kiribati Meteorological Service (KMS) to improve the timeliness and quality of weather forecast provided for the nation. This includes the provision of visual weather software which will enable forecasters to visualise, analyse and incorporate weather observations from all stations into weather forecast preparations. The improved capability will strengthen the coordination mechanisms between the national Government and the outer islands. The software will also let KMS provide weather forecast aviation which is currently provided by Fiji Meteorological Service (FMS).
3. Whilst KMS personnel are completing meteorological training overseas, there is a need to improve the capacity of KMS personnel who are working at the national headquarters. The project will provide capacity building opportunities (both formal and informal) to KMS personnel on drought outlooks, collection, analysis and reporting of data from the

equipped deployed under Activity 1.6 and Activity 1.1, and maintenance of the equipment procured and deployed under the project. Component 2: Water harvesting and supply systems in the outer islands

Component 2: Water harvesting and supply systems in the outer islands

Outcome 1: Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate change

Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence

The National Water Resources Plan highlights a number of priorities for water harvesting and storage including: Water pumps/pipes to get water from good sources to settlements and homes; Protect water wells; Assess and locate available water on the islands; Water conservation at home (including awareness raising); Improve sanitation, construct toilets; Water conservation in piping systems and; Install rainwater tanks. However, it has been demonstrated in Kiribati that for each new water and sanitation strategy, whilst the technological solution may seem simple and straightforward, there are generally many considerations that need to be accounted for in order to make it work. For example,

- ***Groundwater*** is readily accessed with the construction of simple shallow wells, with many households owning their own wells to provide their domestic water needs. There are many advantages to maintaining groundwater as the dominant water source in the outer islands. These include its accessibility; the people's historical reliance and cultural acceptance of it; its relatively low access costs, and its inherent resilience to drought. However, there are concerns over water quality when groundwater is accessed through poorly constructed wells. A review by the KIRIWATSAN Project of well survey data for some outer islands taken in correlation with well construction features indicates that many are subjected to contamination due to poor construction, unsanitary methods of water access, as well as inappropriate location issues.
- ***Rainwater harvesting*** has been limited in its application primarily due to the predominant use of natural roofing materials such as pandanus and coconut, which are unsuitable for rainwater harvesting. The cost and accessibility of permanent roofing materials and rainwater harvesting infrastructure (tanks and guttering) is often prohibitive for general use of rainwater harvesting by the householder. Rainwater harvesting is therefore limited to churches and maneabas. Discussions with village communities, during the water resources assessments, indicate there is a preference for rainwater, which is considered to be of a higher quality than groundwater.

Studies³³ show a number of factors which also need to be considered for successful outcomes including:

Water resource action	Important factors for promoting successful outcomes
Management of water reserves, i.e. protection of freshwater lens from pollution and over-extraction	<ul style="list-style-type: none"> • Community agreement • Government of Kiribati institutional commitment and strength • Monitoring of outcomes • Employing a culturally and sensitive process for engagement
Rainwater harvesting for the purpose of drinking and cooking water	<ul style="list-style-type: none"> • Sense of ownership for infrastructure by those who use the water. • Having an adequate design that can withstand cyclones and which can maintain the physical integrity of the system and thereby ensure good water quality and taste. • Enough skills and funds available to manage the systems • Adequate sizing of systems so that reliability can be ensured even during times of droughts
Desalination	<ul style="list-style-type: none"> • There are no better sources of water available, i.e. it's the last resort. • There are enough funds to pay for ongoing maintenance and operation. • There is a reliable energy source. • There is a preventative maintenance schedule in place. • There is good access to source water. • Spare parts can be readily sourced • Operators are trained and skilled

Furthermore, several lessons learned from previous projects (captured in the National Sanitation Policy 2010 and reinforced during outer island consultations) highlight a number of areas for consideration. Building these lessons and considerations into the decisions and implementation of water and sanitation infrastructure, the Project will undertake the installation of interventions in two approaches: (i) in the scoping phase of the project, an assessment of current water harvesting and supply systems will take place, including quick solutions aimed at immediately improving the water safety and water access for target communities and; (ii) utilising the results from Component 1, work with communities to develop options for the best solutions to deliver long-term water access.

³³ Moglia, M., P. Perez, and S. Burn, *Assessing the likelihood of realizing idealized goals: The case of urban water strategies*. Environmental Modelling and Software, 2012. **35**: p. 50-60; Moglia, M., P. Perez, and S. Burn, *Modelling an urban water system on the edge of chaos*. Environmental Modelling & Software, 2010. **25**(12): p. 1528-1538

Output 2.1. Assessment of current water and sanitation infrastructure

Output 2.2. Early water safety interventions e.g. covering of wells and installation of pumps in identified villages under the assessment

Activity 2.1: Assessing current water harvesting and supply systems and implementation of ‘early win’ interventions

Activity 2.1 aims to build upon the current platform of water infrastructure in the outer islands with a particular focus on water safety. This will be undertaken through the implementation of simple, cost-effective solutions to secure safe water on current village wells and provide drought-vulnerable villages with access to rainwater harvesting facilities in the early stages of the project. The following activities will be undertaken to meet this objective:

2.1.1. Assessment and survey of water and sanitation infrastructure and conditions

To underpin scientific evidence base around climate change, sea level rise, groundwater systems and water quality, another key part of understanding the local context is about knowing exactly what is available in each of the islands, in terms of water supply, sanitation and available resources. Together with the scientific evidence, this activity is a mapping of baseline physical conditions provides the basis for planning activities (Component 4) and decision-making (Component 1).

This activity will involve a survey of the physical water and sanitation related conditions across the three selected islands (e.g. Tab South, Kuria and Onotoa). This will include a survey of villages and populations, mapping wells, including their condition and type, as well as identifying and mapping out any infiltration galleries and associated pipes and pumps, desalination facilities, as well as rainwater harvesting capacity, conditions and potential. It will record numbers and locations of wells and rainwater harvesting systems as well as a range of other parameters. The results will inform other activities within Component 2 directly and within Component 1 and 4 indirectly.

The activity will involve a full physical survey in the three targeted islands. The results of the assessment will be developed into recommendations for undertaking actions to secure water safety in these islands through early intervention (refer sub-activity 2.1.2). Depending on the results of the monitoring and evaluation assessments as to the success of the early interventions, further assessments on the remaining eight islands may be undertaken.

2.1.2. Securing safe water through improving current water infrastructure

Guided by the results and recommendations from the assessment / survey undertaken in sub-activity 2.1.1, the project will work with communities in the three outer islands to undertake:

- i. The covering of wells and installation of pumps e.g. Tamana or Abaiang pumps. These pumps are utilised throughout the outer islands and are effective and inexpensive to install and maintain.
- ii. Install rainwater harvesting systems in drought-vulnerable villages in the target islands. The installation of initial rainwater systems will enable the communities to access rainwater whilst the project is progressing with undertaking the information and data assessments required to meet their future needs.

The implementation of these early wins will be assessed as part of the 'real time' monitoring and evaluation programme to ascertain the success of this initial set of interventions. Depending upon the results from the M&E assessment, the early interventions may be scaled up across the remaining outer islands.

Output 2.3. Selected villages have water harvesting and supply facilities installed in line with climate change projections

Activity 2.2. Implementation of long-term options for water harvesting and supply systems in the target islands

The findings and recommendations from Component 1 will lead to viable and feasible options for long-term water harvesting and supply systems in the target outer islands being developed for consultation with the outer islands and Government of Kiribati. Lessons from previous projects illustrate the need to not pre-empt what the options may be, however, the findings from Component 1 will review groundwater, rainwater and desalination options to assess viability.

Output 2.4. Socio-economic benefit analysis

Activity 2.3. Determining the sustainability of water and sanitation programmes in climate change adaptation

To assist in determining the sustainability of water and sanitation programmes in climate change adaptation, the Project will undertake a formal, systematic socio-economic benefit analysis. This analysis will be at multiple levels, from national economy (GDP) scale to householder level within the island villages who are the primary beneficiaries of the project. The outputs of this analysis will provide estimates of 'return on investment' using a combination of standardised quantitative econometrics and related qualitative metrics comparing the current state, with no intervention (counter-factual) to one or more future states, following project interventions. It is expected the outputs will provide the economic rationale for future/ongoing investment in support of on-ground interventions to enhance long-term resilience of the outer islands of Kiribati in relation to climate change impacts on water security and sanitation. This activity will include:

- Implementation of the Pacific Cost-Benefit Analysis Framework for Climate Information Services for Pacific Island Countries, as developed for GCF Vanuatu Project, including economy to household scale analysis of the impacts of project interventions
- Analysis of project adaptation scenarios compared with counterfactual scenarios without intervention, using General Equilibrium Analysis approach modified to suit Kiribati outer islands
- Data inputs from other activities in Component 1, to address triple bottom line (economic, social and environmental) outcomes as appropriate

Component 3: Piloting sanitation approaches in the outer islands

Outcome 4: Village-led, culturally appropriate sanitation facilities are in use in the targeted sites

Projects conducted by international donors over the past decade have included water and sanitation infrastructure improvements and associated educational programmes to raise

awareness of the importance of safe potable water supplies and adequate sanitation among I-Kiribati. However, many of these programmes in developing infrastructure have not taken into account the cultural appropriateness when addressing sanitation matters. Whilst composting toilets have been built under previous projects e.g. KIRIWATSAN, in many cases these are disused due to installation in the wrong location, and cultural sensitivities in their use and the handling the waste compost etc. Donor funded projects have traditionally been designed with an approach that allows limited community involvement during project design and implementation. Site visits to three outer islands in Kiribati during the planning phase highlighted the importance of community consultation and buy-in to ascertain the most appropriate sanitation facilities which are culturally appropriate and acceptable.

A community-based approach to enable communities to fully engage in deciding their priorities, weighing the different options, appropriate levels of service in relation to costs, acceptability of the proposals, and monitoring of improvements will be essential for successful and sustainable outcomes of this project. This project will build upon the lessons learned from previous projects and working with current programmes (e.g. WASH), will undertake a programme of community engagement in developing viable, culturally appropriate options for sanitation.

The Component will be structured around a two-pronged approach:

1. Develop a pilot programme working with targeted villages to determine the most environmentally and culturally appropriate approaches to sanitation solutions and testing these approaches.
2. Support the implementation of the UNICEF WASH Programme across the outer islands. The WASH programme will be scaled-up to incorporate all sectors of the village community i.e. schools, medical facilities, women's groups, youth groups, men's groups and vulnerable people.

Output 3.1. Analysis of factors influencing behaviour, attitude, constraints and incentives towards sanitation in the outer islands

Output 3.2. Village designed sanitation options developed

Activity 3.1. Identifying, testing and evaluating culturally appropriate sanitation approaches

Understanding how people in the outer islands relate to sanitation options and what the barriers and constraints are to effective implementation of options is critical for the long-term sustainability of any proposed sanitation solutions. Furthermore, any proposed solutions must be driven and developed by the community itself in order to ensure ownership or buy-in into the process and the motivation to undertake the change in practices needed. Lessons from the Pacific region in the implementation of sanitation approaches has demonstrated the broad-based approach to sanitation of 'one size fits all' is not effective in changing practices at the broad scale, and more individualised approaches driven by the community itself, may be needed.

This activity aims to work with targeted villages in the outer islands to develop culturally appropriate sanitation approaches based on an island approach. To begin, the activity involves the undertaking of a sociological survey (in conjunction with Activity 4.1) with the aim to understanding the following:

1. Community-level collection of qualitative data on existing sanitation practices and how sanitation practices are embedded in cultural, social, economic and geographic contexts:
 - Existing sanitation practices (time, place) and how these differ according to demographic characteristics such as gender, age, social status etc;
 - How sanitation practices are associated with livelihood practices, cultural norms, perceptions of water and health, and roles and responsibilities of community members;
 - Perceptions of past sanitation interventions
 - Perceptions of the role of individuals, households, island organisations (e.g. church), national government, national civil society, donors in sanitation interventions.
2. Identification of behavioural as well as broader contextual factors which contribute to the persistence of poor sanitation practices.

Utilising the results from the survey, a 'menu', based on review of internal best practice of culturally appropriate sanitation behaviour approaches will be developed, with the most promising approaches selected for trialling.

The process would start with a desk-top based review of best practice, and the output would be a report and communications materials that could then be used in rapid appraisal process with photos and communications materials. The interview process using rapid appraisal methodologies with the Government of Kiribati stakeholders and experts will help to make sure assumptions about appropriateness will be evaluated.

To be able to collect data from local communities about the appropriateness of different sanitation solutions, Q-methodology will also be used to elicit tacit knowledge. Q-methodology is based on visual representations of issues and ranking, and the benefit of the approach is that it is particularly suitable for participants with low levels of literacy.

Building on appropriate community engagement, design and training, community-driven options will be installed in select locations and the project will monitor the following outcomes through follow up visits:

1. Use of facilities: to what extent have the facilities prompted behaviour change
2. Operation and maintenance of facilities: the condition of the facilities over time
3. Roles and responsibility: understanding of who does what in relation to the new infrastructure
4. Self-reported householder benefits of the new facilities
5. Monitoring of any changes in the contamination of freshwater lenses.

When positive results can be demonstrated, these will then be scaled up as appropriate into other outer islands.

Output 3.3. WASH programme delivered across all community groups in the outer islands

Activity 3.2. Implementing approaches aimed at inducing long-term changes to behaviours and practices in water, sanitation and hygiene

Activity 4.3 will complement the approaches to community development on sanitation facilities by focusing on continued education and training of communities in the WASH principles (also linked to the water safety plans under Component 5). The importance of the education and awareness-raising of sanitation and hygiene is critical in reducing illness. A review undertaken by Bosch et al 2013³⁴, illustrates hygiene interventions such as handwashing and hygiene education in childcare centres significantly contribute to reducing diarrhoeal disease.

Activity 4.3 therefore, focuses upon value-adding to already established programmes through: (i) working with current programmes i.e. UNICEF's WASH programme to continue to educate at the school and health facilities under WASH's new Outer Island programme, and through the Ministry of Women, Youth and Social Affairs (MWYSA); (ii) supporting established mechanisms in place in the Outer Islands as conduits for educating other sectors of the community i.e. women island officers, and; (iii) working with the UNICEF WASH and MWYSA to train the additional conduits (e.g. women's island officers) in the WASH techniques to ensure there is consistent messaging within the community. Through these mechanisms, the WASH programme will be rolled out to all sectors of the community.

Ensuring these networks function efficiently will depend on two key factors. The first of these is the level of buy-in and involvement from the local communities across the islands and in the villages under the Project. To this end, these networks need to include dynamic feedback loops whereby the communities provide regular feedback into the training programmes and the programmes are adjusted to ensure appropriateness. To elicit sustained and sustainable institutional and community involvement, there must be room for real stakeholder engagement throughout the Project.

The second factor is the efficient use of funds. The present budget for the Project demands significant strategizing to make the most of the limited resources. Where possible, the resources will need to be linked to other programmes to maximise the benefit. In this sense, the Project will collaborate with UNICEF to cost-share the implementation of the WASH programmes in schools and health facilities, and the training of outer island facilitators (e.g. women island officers) to ensure a more cost-effective approach to enable a greater application across the target islands.

Component 4: Strengthening coordination mechanisms for water resource management at Government, Island and Village level

Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence

Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water

³⁴ Bosch et al, 2013, 'Water and Sanitation' (Chapter 23) in Jeni Klugman (ed), *A sourcebook for Poverty Reduction Strategies (Vol. 2): Macroeconomic and sectoral approaches*, The World Bank Group

Improving the efficiency, transparency, responsiveness, coordination and cooperation of government institutions in water and sanitation will improve planning, efficiency, services and partnerships with the community³⁵. Within Kiribati multiple Ministries have mandates in the water and sanitation sectors e.g. Ministry of Infrastructure and Sustainable Energy (MISE), Ministry of Health (MoH), Ministry of Environment, Land and Agricultural Development (MELAD) and Committees (e.g. National Drought Committee, National Sanitation Committee, Disaster Risk Committee, Island Disaster Committee). The present governance arrangements relating to water and sanitation are viewed as ad-hoc and lack effective commitment to coordination in the planning and implementation of these sectors and for the regulation of the sectors to achieve the gains sought³⁶. Moreover, the lack of effective coordination between these Ministries and Committees with the Outer Island Councils can encumber planning and disaster risk responses relating to water resources.

Furthermore, there are currently no mechanisms by which the community can participate in the planning and management of water and sanitation services. Previous attempts to form a stakeholder committee to improve management of water reserves on South Tarawa have lapsed due to lack of effort by all parties. The formation of village water and sanitation committees is an important mechanism for increasing participation at the local level³⁷. Efficient institutional arrangements and roles need to be achieved through clear joint decision-making frameworks, and refining, strengthening and formalizing the roles for the government, island councils, private sector, NGOs and the community.

This project aims to contribute towards improving the coordination in the water and sanitation sectors across the national level and the outer islands through refining the roles and responsibilities through the development and implementation of integrated water and sanitation management plans appropriate at the island level. The development of the plans outlined in this Component will be utilising the joint decision-making framework devised in Activity 4.1 and will incorporate appropriate information and results from Component 1. The plans will be integrated into Kiribati's national frameworks and processes (refer to Figure 12).

Output 4.1. Coordinated water and sanitation decision-making model for Government of Kiribati and outer islands

Activity 4.1. Empowering community and government in joint decision-making

Lessons from previous water and sanitation projects highlight the critical importance of ensuring that local communities and the Government of Kiribati jointly agree on water and sanitation solutions to ensure intended outcomes. Specifically, these agreements need to include:

- a. Clarity on procedures for ensuring engineering designs are appropriate, i.e. they address community needs, designs are culturally appropriate and sensitive, and designs are consistent with Government standards and environmental and social safeguards.
- b. Clear roles and responsibilities regarding operation and maintenance. This includes ensuring adequate training and resources to complete any ongoing jobs and the sourcing of spare parts.

³⁵ Ibid

³⁶ National Sanitation Policy 2010

³⁷ National Water Resources Implementation Plan 2008

- c. Measures to protect the groundwater resources, i.e. to limit freshwater extraction to within sustainable levels, to clear vegetation on groundwater reserves, to limit animals or human activity on reserves.
- d. Frameworks on how to monitor and act on any adverse outcomes, i.e. limited water availability during drought as well as efforts to reduce contamination in the case of high incidents of water-related illness.
- e. Frameworks on how to monitor and act on issues concerning point-source pollution into marine environments, i.e. relating to waste disposal or other sources of contamination.

Achieving this is a challenging task. The project will, therefore, develop and trial new ways of empowering community and government in joint decision-making. To address this, the following activities will be undertaken:

1. Baseline mapping of decision-making practices in previous projects to be able to understand what has worked and hasn't worked.
2. Co-design of an appropriate decision-making framework that achieves A-E above using best-practice principles and approaches for co-design of a decision-making framework that can be readily moulded and adapted to the different contexts in the Outer Islands.
3. Piloting and evaluating the approach in three selected islands, putting in place ongoing monitoring to confirm the validity of the approach and to maximise any learning to improve outcomes into the future.

This activity is strongly connected with other components of the project as the decision-making process needs to be informed by, and draw upon, the evidence base (Component 1) and lead to the development and implementation of relevant plans (Activity 4.2 – 4.4). As illustrated in Figure 11, the activity is a highly interactive and iterative process.

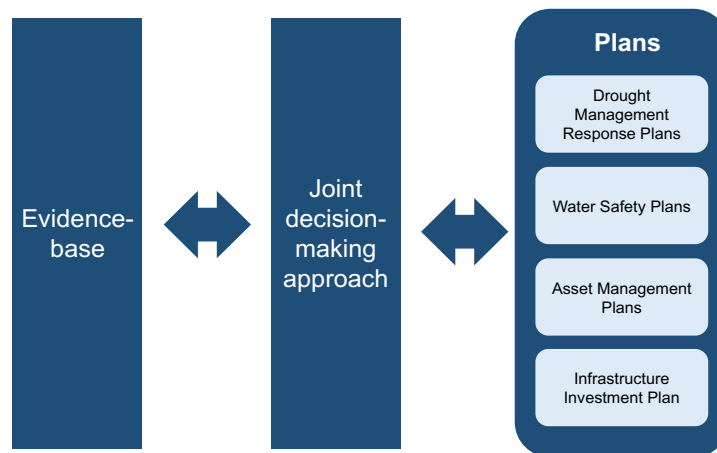


Figure 11: Interaction between decision making, evidence base and plans

As per Figure 11, how local communities and the Government of Kiribati jointly decide to improve water management will be facilitated to be based on best available evidence (Component 1) and planning activities (Activities 4.2-4.4). The joint decision will clarify roles and responsibilities, agreed rules and commitments, adequate resourcing, risk management approach, and ongoing monitoring of outcomes to facilitate that whatever options are chosen will be sustainable, effective and equitable.

4.1.1 Baseline mapping of decision-making practices in previous projects

In conjunction with, and feeding into, the development of Community Engagement Plans and the Gender Action Plan, a structured review of experiences in water and sanitation in Kiribati will be undertaken, with a focus on mapping the formal and informal governance that exists, the cultural and social norms that influence outcomes, in order to understand what has worked and hasn't worked in terms of achieving A-E above. Gender considerations will be explicitly considered in this activity and the activity will work with the Gender Officer and be guided by the Gender Strategy and Action Plan (Annex E).

4.1.2. Co-design of the decision-making framework

There is an unfortunate history of water and sanitation projects in Kiribati not achieving their intended goals. Despite best intentions, the reasons for less than optimal results are diverse, often related to social complexity, and quite often related to local physical conditions not necessarily taken into account in the decision-making processes. This can be resolved to a large extent by embedding multiple perspectives in the process of making decisions, resolving any conflicts and tensions associated with solutions, and to ensure that cultural sensitives and barriers are taken into account. To address this issue, this activity will develop a consensus-building tool within an appropriate decision-making framework, involving Government of Kiribati representatives, community representatives and experts.

This activity involves co-design of an appropriate decision-making framework that achieves A-E above: using best-practice principles and approaches that can be readily moulded and adapted to the different contexts in the Outer Islands. The outputs of the decision-making framework (achieved through interactive engagement activities such as participatory modelling and scenario planning activities), when applied in an island, should be the island-level drought management response, water safety, and asset management plans. This requires a high level of linkage and coordination between Components 1, 3 and 4.

Collecting and merging viewpoints of different stakeholders to build a shared representation of water as part of a cultural and socio-ecological system and simulation of system pressures through various interactive engagement activities will enable communication among different groups and encourage joint decision-making and shared ownership on future water management pathways.

4.1.3. Piloting and evaluation of the collaborative decision-making approach in target Outer Islands

The decisions that create the foundation for water safety plans, asset management plans, drought management and response plans, and infrastructure investment plans require a level of consensus between Government of Kiribati and local communities which have a diversity of views and perspectives (achieved in sub-activity 4.1.2). Sub-activity 4.1.3 aims to test the approach for the purpose of social learning and refining the methodology. The result should build on and refine the approach developed in sub-activity 4.1.2, so that a robust approach for consensus-building can be used for remaining islands.

4.1.4. Establishing a Government of Kiribati monitoring framework of water needs across the outer islands

There is a need to collate and make better use of available data from different sources, on issues like water quality, health outcomes, and water availability, as well as access to sanitation and water, etc. It is proposed to bring this data together into a decision support tool to provide rapid

and interdisciplinary assessment of water and sanitation deficiencies in different locations. This will provide a preliminary evaluation of locations that require further attention. The preliminary evaluation ought to lead to additional data collection (as per Component 1 and Activity 2.1) that helps provide more detailed guidance on what type of options that could be used to improve the situation. In other words, the tool will help to prioritise government efforts, and to increase the understanding of Government of Kiribati staff of the differences and similarities between different islands, in terms of their water and sanitation situations.

The activity will utilise an interdisciplinary methodology for this that has been tried and tested in locations like Vietnam and the Philippines and will be embedded into a simple to use decision support tool. The activity will help set up the tool and provide instruction, training and ongoing mentoring for updating, maintaining and using the tool. Ideally, this should be based on assessment of needs, which will help to optimise ongoing investments. The outputs will also benefit Component 1 and 2. This activity will be undertaken in tandem with Activity 2.1 assessing the current water harvesting and supply systems.

The prioritisation approach needs to be based on a situational analysis of the islands and villages, as well as ongoing evaluation of needs over time. This can be done using rapid assessment approaches such as the Water Needs Index, which require only ongoing water quality monitoring data, health data from island medical clinics, and any available householder survey data. In other words, it provides synthesis of available multi-sectoral data.

Output 4.2. Drought Response Plans developed and implemented

Activity 4.2. Developing Outer Island Drought Response Plans

Whilst Kiribati has an established drought response plan for South Tarawa³⁸, except for the island of Abaiang³⁹, there are currently no plans in place for the outer islands. Drought response plans enable communities to understand and prepare for drought periods and have been identified as the number one priority during stakeholder consultations for this project.

Utilising the approaches undertaken in developing the South Tarawa and Abaiang plans, the project will focus on developing outer island drought response plans for the three target islands. The approach will focus upon two core areas: (i) the development and implementation of the drought response plans (DRP) for each island, and; (ii) strengthening the capacity of the Government of Kiribati for informing drought response plan implementation.

The drought response plans will articulate to specific communities how to prepare and implement mitigation actions such as reducing water demand and monitoring water resources and water use in drought situations. Furthermore, the plans will identify the indicators for drought at different levels, including the incorporation of traditional knowledge into these indicators. The response plans and subsequent data collected will strengthen the coordination mechanisms between the National Drought Committee and the Island Councils, thus enabling the enactment of actions in the lead-up to drought situations based on island-specific circumstances, rather than relying upon old information and the drought response plan for South Tarawa.

³⁸ South Tarawa Drought Response Plan (DRP)

³⁹ Drought Management and Response Plan for Abaiang Island Community

The plans will be developed in full collaboration and consultation with the relevant Government ministries, Island Disaster Committees, Island Councils, and other relevant stakeholders at the village, island and national levels.

Output 4.3. Water Safety Plans developed and implemented

Activity 4.3. Developing Outer Island Water Safety Plans

Kiribati has a very high incidence of water, sanitation, and hygiene related diseases; and it has among the highest rates of infant mortality in the Pacific region. Diarrheal disease, which is often linked to inadequate water supply, sanitation, and hygiene, is one of the three leading causes of under-5 mortality in Kiribati⁴⁰.

Only the current fresh groundwater sources in South Tarawa have specific regulations aimed at protecting them from contamination. There are no equivalent regulations for protecting water sources in rural areas or outer islands and training/information on water safety is ad hoc. This activity aims to work with the island communities to develop village-level water safety plans which can be implemented at the village level, and train villagers in water safety to reduce contamination of the water supplies.

The plans will be developed and implemented through the Ministry of Health and in full collaboration and consultation with the relevant Government ministries, Island Disaster Committees, Island Councils, UNICEF WASH and other relevant stakeholders at the village and island level.

Output 4.4. Asset Management Plans developed and implemented

Activity 4.4. Developing Outer Island Asset Management Plans

Within the outer islands, maintenance of infrastructure is the responsibility of the community and/or village, leading to a strong sense of ownership of the facilities by the community. Asset management plans are critical tools in recording and maintaining the water and sanitation infrastructure on the outer islands, providing guides to the communities and villages on how to maintain their water and sanitation infrastructure. During stakeholder meetings it was agreed the asset management plans should include all water on the island i.e. groundwater and rainwater and include all infrastructure e.g. water and sanitation infrastructure. Once the infrastructure is completed, it will be registered onto the asset register and included in the management plan (refer below).

The activity will, therefore, develop and implement asset management plans for all facilities through: (i) reviewing current asset management plans to ascertain compatibility with the new interventions installed under this project, and update where appropriate as the new infrastructure is implemented; (ii) developing new asset management plans for those communities / villages whereby current plans are not suitable and; (iii) training on asset maintenance will build the capacity of the island water technicians and other interested community members in maintaining and servicing the infrastructure.

⁴⁰ ADB 2014, 'Economic costs of inadequate water and sanitation: South Tarawa, Kiribati', Asian Development Bank, Manila; UNDP 2014, 'Harvesting rainwater to improve access to safe drinking water and adapt to climate change: Spotlight on Kiribati', UNICEF

Component 5: Facilitating the sustainability of project outcomes into the outer islands and at the national level

Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water

Component 5 comprises core cross-cutting activities designed to ensure : (i) integration of gender and social inclusion into all activities and actions of the Project; (ii) coordination across activities and general interactions of the project team with the stakeholders (i.e., outer island councils and villages, and national Government Ministries; (ii) the building of the knowledge platform and products for learning and uptake of information at the outer island and national levels and; (iv) developing a centralised project data management system.

Output 5.1. Gender and social inclusion embedded across activities and within outer island consultations and trainings

Activity 5.1. Embedding gender and social inclusion across all project activities

Gender plays a significant role in the interaction with water and the impact of waterborne disease as seen in the Project's Gender and Social Inclusion Strategy and Action Plan⁴¹. The Plan has been developed under the planning phase (refer Annex E) building on existing gender policies and actions plans of other climate funds, and integrating the key principles in the AF ESP including those reflecting access and equity, marginalized and vulnerable groups, and human rights, including gender equality and women's empowerment. The Gender and Social Inclusion Strategy and Action Plan (GSIS&AP) is part of the Social Safeguards for the project that ensures long-term sustainability and accountability and ensures long-term resilience for the people.

During the scoping phase, the GSIS&AP will be reviewed and updated depending on the outcomes from the various activities. The scoping phase will also provide the opportunity for the Project Management Unit (PMU) to ensure gender considerations are fully embedded and incorporated across all project activities as appropriate and as outlined in the Plan. To assist in the ongoing implementation of the Plan and gender-related considerations, a Gender Officer will be employed. Additional external expertise may be contracted through a Gender Advisor, to advise, provide training and / or support the Gender Officer and Project team throughout the life of the project to implement specific activities.

To further support the implementation of the Plan, the capacity of the PMU, Executing Agency, implementing partners and interested stakeholders will be further strengthened through regular training and mentoring on mainstreaming gender in climate change and adaptation will be undertaken.

⁴¹ The complete Gender and Social Inclusion Strategy and Action Plan is available from the Implementing Agency. Annex E provides details of the Action Plan.

Output 5.2. Knowledge products developed

Activity 5.2. Community engagement, Knowledge Management and Outreach

To sustain water resources and the benefits to people in outer islands, knowledge obtained from the Project's activities must be shared with the stakeholders and beneficiaries. That knowledge however must be interpreted and packaged in such a way that people understand it and take heed of the information, advice or guidance it provides, for example if safe drinking water levels are low, or if water quality is found to be too risky. How knowledge is packaged and communicated to ensure people use it will differ between levels i.e. sector, island council, villages and even between villages, so a blanket approach cannot be assumed.

As highlighted in the Gender and Social Inclusion Strategy and Action Plan, each outer island has its own governance and decision-making system, and a one-size fits all for engaging with the outer island communities will not be appropriate. It is therefore critical for Project success that the decision-making and engagement system(s) already in place are recognised, understood and adhered to. Furthermore, the Project will need to work through the various Government Ministries e.g. Ministry of Internal Affairs, when engaging in the outer islands. To ensure an understanding of the system(s) and to build a cohesive and coordinated approach to engaging with outer island communities, Community Engagement Plans will be developed for each island to guide the project's implementation.

Activity 5.2 therefore establishes the knowledge management platform for the Project, and will lead the KM, communication, engagement and outreach activities designed to promote behaviour change, decision-making and learning amongst the Project beneficiaries. This activity will coordinate across all components and activities to build and communicate the Project's results and information outputs into appropriate formats for the audiences identified in the knowledge management, communication and outreach strategy. This involves:

- i. The development of strategies and objectives designed to maximise the dissemination and adoption of applied knowledge produced by the Project;
- ii. The creation of content (key messaging and storytelling) that engages stakeholders and inspires them to utilise the knowledge and practice into their decision-making;
- iii. The production of practical information products for the Project beneficiaries and broader advisory communications for external stakeholders;
- iv. The utilisation of experiential activities and participatory forums, including outer island sites, which demonstrate the Project's knowledge and models in action;
- v. In conjunction with the project personnel, the building of relationships with key networks and programs which are trusted by stakeholders as credible sources of knowledge and insight; and
- vi. The establishment of mechanisms and channels for high-impact delivery and sustain knowledge into practices beyond the life of the project.

A Knowledge Management & Outreach Manager will be employed to lead the knowledge management, communication and outreach activities with additional expertise to be contracted as needed to provide strategic advice and guidance, and training as required.

Output 5.3. Centralised and coordinated data management

Activity 5.3. Establishing effective data management mechanisms

Given the large volumes of current data collated and analysed, and new data to be produced, there is a need for a coordinated data management framework and system for the Project which will enable all project-related data to be stored in a centralised repository and be available to all stakeholders and other interested parties as appropriate.

This activity will include the development of a data management plan for the Project which will outline the data management framework including storage of data, responsibilities of the project personnel and Ministries involved in the implementation of project activities, and the general rules of engagement. Furthermore, the project will explore the option to develop a centralized database system required for the storage and ease of access to information that will inform national government and island council level support to communities in outer islands.

B. Economic, social and environmental benefits

Apart from the evident gains of leading a healthy life, proper access to clean water and basic sanitation has profound social and economic impacts⁴². Additionally, it brings about positive externalities by protecting environmental resources and enabling sustained economic growth. Many of the impacts are captured in the sustainable development agenda, such as poverty reduction, ending malnutrition, ensuring healthy lives, achieving gender equality and productive work⁴³.

Economic Benefits

Water and economy are inextricably linked with inadequate water and sanitation services to the poor increasing their living costs, lowering their income earning potential, damaging their well-being, and making life riskier⁴⁴. A country's overall development strategy and macroeconomic policies – including fiscal, monetary and trade policies – directly and indirectly affect demand and investment in water-related activities. Improved access to water services and improved management of water resources contribute substantially to economic growth through increasing business productivity and development⁴⁵.

Kiribati continues to experience high economic burden due to poor water and sanitation conditions. Conservatively, it is estimated the government, individual households and economy as a whole, share the burden of annual economic costs between A\$3.7 million – A\$7.3 million, or 2 - 4 percent of national GDP⁴⁶. This translated to an annual economic cost of A\$550 - \$1,083 per household, or an equivalent of A\$71 – A\$140 per resident of South Tarawa⁴⁷.

⁴² ESCAP 2018

⁴³ Ibid

⁴⁴ Bosch et al, 2013, 'Water and Sanitation' (Chapter 23) in Jeni Klugman (ed), *A sourcebook for Poverty Reduction Strategies (Vol. 2): Macroeconomic and sectoral approaches*, The World Bank Group

⁴⁵ ADB 2014, '*Economic costs of inadequate water and sanitation: South Tarawa, Kiribati*', Asian Development Bank, Manila

⁴⁶ ADB 2014, '*Economic costs of inadequate water and sanitation: South Tarawa, Kiribati*', Asian Development Bank, Manila; UNDP 2014, '*Harvesting rainwater to improve access to safe drinking water and adapt to climate change: Spotlight on Kiribati*', UNICEF

⁴⁷ ADB 2014, '*Economic costs of inadequate water and sanitation: South Tarawa, Kiribati*', Asian Development Bank, Manila

Improved access to safe water can lead to increases in national income and GDP. A 0.3 percent increase in investment in household access to safe water is associated with a 1 percent increase in GDP⁴⁸ as increased access to safe water will increase the income-earning potential due to improved health and reduced time spent collecting water⁴⁹.

The lack of convenient and affordable access to water reduces a poor household's consumption of other commodities and services, leaves it consuming less than the optimum amount of water for good hygiene, and impacts health and labor productivity of the household members. It may also reduce income-generating opportunities of the household, thereby further reducing income and consumption⁵⁰.

Through the evidence base and decision-making frameworks in Components 1 and 4, culminating in the implementation of water harvesting and supply interventions (Component 2), this project will be assisting the Government of Kiribati to provide improved access to safe drinking water to the outer islands populations, indirectly leading to improvement in the economic burden caused by water-related health problems and the GDP of Kiribati.

Social Benefits

The social benefits of equitable access to clean water and sanitation include improved health conditions, improved gender equality and enhancing women's empowerment, and basic human dignity. The Project will be contributing towards these social benefits through the gender and social inclusion actions and the implementation of water resource infrastructure for the long-term future of the outer islands.

Access to safe water sources and improved sanitation leads to improvements in the health of women, men and children with a reduction in water-related diseases. Water-related diseases and those derived from poor sanitation are among the main causes of mortality in children under 5 years of age⁵¹. Early childhood development in particular is impacted by the lack of safe water and basic sanitation with stunting, a condition characterized by low height for age among children under 5 years of age, partly caused by loss of nutrition during bouts of disease, particularly diarrhoea⁵².

In 2006, only 53 percent of people in rural areas of Kiribati (i.e. outer islands) had access to "improved" drinking water sources (Falkland 2011). The term "improved" rather than "safe" drinking water sources is used as a proxy to measure progress towards achieving the drinking water target of the Millennium Development Goals (MDGs) "to halve the proportion of people who are unable to reach or to afford safe drinking water". "Safe" drinking water means water that is safe to drink and available in sufficient quantities for hygienic purposes. Thus, "improved" drinking water sources refers to many sources that are not safe to drink. For example, in low-lying sand islands such as Kiribati, well improvements such as concrete surrounds and covers do nothing to prevent the movement of pathogens through groundwater and into the well (Falkland 2011).

⁴⁸ Ibid

⁴⁹ Bosch et al, 2013, 'Water and Sanitation' (Chapter 23) in Jeni Klugman (ed), *A sourcebook for Poverty Reduction Strategies (Vol. 2): Macroeconomic and sectoral approaches*, The World Bank Group

⁵⁰ Ibid

⁵¹ ESCAP 2018

⁵² ESCAP 2018

A 2013 household survey in South Tarawa⁵³ showed the health effects of poor water and sanitation (i.e. dia_dys) within households were borne by females. The study found (i) females had a higher likelihood of suffering from dia_dys than males, and (ii) younger persons were more likely to suffer from dia_dys, with boys showing significantly lower chances of suffering dia_dys than girls.

Access to clean water is also critical for achieving gender equality and enhancing women's empowerment. Women often bear the brunt of a household's domestic work as they are responsible for supplying water for childcare, house maintenance, and food preparation. In PICTs, water collection is primarily considered the responsibility of women and girls⁵⁴. Collecting and carrying water while pregnant may cause difficulties in pregnancy or reproductive health consequences, including uterine prolapse⁵⁵.

When water is not available in the premises, collecting it is often an arduous task. Worldwide, it is estimated that those without access to clean water spend over 30 minutes per round trip to collect it. More than time-consuming and dangerous, this activity restricts women from engaging in income-generating work or educational activities⁵⁶.

Increases in educational attendance is also a social benefit brought about by access to safe water and sanitation. Inappropriate school sanitation or total lack of toilets or latrines, lack of water, and lack of privacy can lead to declines in the number of girls attending school with improvements in these areas encouraging attendance⁵⁷.

Environmental Benefits

Threats to water sustainability arise in both quality and quantity dimensions, driven by pollution and competing demands from many sectors⁵⁸. Improving water safety and sanitation on the outer islands will assist in increasing access to safe drinking water and lead to improvements in the water quality, both groundwater and marine sources.

Within Kiribati the main sources of fresh water, rainwater and shallow unconfined groundwater are very vulnerable to contamination from poor sanitation systems and facilities. Improved access to, and education on, safe and clean water and improved sanitation facilities will assist in reducing contamination and improving water quality.

Open defecation is practiced in the outer islands of Kiribati (field observations), with human waste containing nutrients such as nitrogen and phosphorus⁵⁹ entering the marine system, leading to eutrophication. Eutrophication and grazing can profoundly alter the biotic community structure of marine ecosystems⁶⁰. The need to reduce anthropogenic nutrient inputs to aquatic ecosystems in order to protect drinking-water supplies and to reduce eutrophication, including the proliferation

⁵³ ADB 2014, '*Economic costs of inadequate water and sanitation: South Tarawa, Kiribati*', Asian Development Bank, Manila

⁵⁴ Anderson et al 2019, '*Water, Sanitation and Hygiene in the Pacific and the need to meet SDG6*', Discussion Paper; ESCAP 2018

⁵⁵ Anderson et al 2019, '*Water, Sanitation and Hygiene in the Pacific and the need to meet SDG6*', Discussion Paper;

⁵⁶ Anderson et al 2019, '*Water, Sanitation and Hygiene in the Pacific and the need to meet SDG6*', Discussion Paper; ESCAP 2018; Bosch et al. 2013

⁵⁷ Bosch et al. 2013

⁵⁸ Bosch et al. 2013

⁵⁹ Amin et al 2017

⁶⁰ Smith et al 2006

of harmful algal blooms (1) and “dead zones” in coastal marine ecosystems (2) has been widely recognized⁶¹.

Exploring potential long-term and culturally appropriate sanitation solutions (Component 3) will contribute towards the efforts to reduce the environmental impacts from pollution.

Project Compliance with the Environment and Social Policy of the Adaptation Fund

Benefits stemming from the project will be strengthened by the inclusion of lessons learned from previous projects in the outer islands. Several key lessons were learned during the planning consultations with stakeholders and community representatives on the outer islands. There were a number of cross cutting concerns raised over potential social impacts/risks mostly stemming from past experience of poor consultation and engagement; poor planning resulting in delayed implementation; lack of understanding of the uniqueness of each islands water resource challenges; unreasonable demands on community members; and, lack of capacity building within communities.

To ensure that this project meets community expectations of inclusive implementation, all project activities under Components 1, 2, 3, 4 and 5 will be developed jointly with communities and their representatives to create a shared understanding on the communities needs with respect to equitable access of water resources now and in the future under the threat of climate change, including assessing the concerns and needs of the most vulnerable groups. Frequently, children, women and elderly are the most vulnerable groups in communities. Since women play a key role in the health of the family, the project is very interested in incorporating women in most activities and community management structures.

Environmental and Social Safeguard screening was undertaken against the AF ESS Policy Principles by an experienced safeguard specialist during the preparation of this project proposal. Section K below outlines the findings of this assessment.

To mitigate negative impacts, the following measures have been or will be implemented through the project lifetime:

- i. **Project planning:** This document has been developed to take into account the environmental and social safeguard assessment findings. The design of the project plan, the structure of the proposed activities and the level of detail paid to project outcomes all reflect a high level of influence from the safeguard assessment findings. Community consultations, outer island site visits and the AF ESS policy guidance document have led to the development of a safeguards inclusive project plan.
- ii. **ESMP:** As per the AF ESS Policy Guidelines, the risks and/or impacts that have been identified and determined as unavoidable have been captured in an Environmental and Social Management Plan which is submitted as part of this proposal and summarised in Section K of this proposal. The ESMP describes the risk mitigation measures that will be taken to ensure consistency with the AF ESP Principles and the laws and regulations of the Republic of Kiribati. The ESMP consists of the specific management measures and related activities that were identified during the ESS assessment and provides detailed instructions to the EE, EE PMU and any contractors on how to implement the mitigation and monitoring plans. The ESMP is applicable to the design, construction and operational

⁶¹ Conley et al 2009

phase of the project and should be implemented in parallel to the projects Gender Action Plan.

- iii. **Capacity Building and Training:** To ensure that the project ESMP can be fully integrated and implemented, the EE PMU will be staffed with officers specifically tasked to oversee its implementation. Training will be given to these officers and to the Project Manager on the safeguard requirements of the Adaptation Fund and on the requirements of the ESMP, including monitoring and reporting. To further ensure compliance with the ESMP on the outer island project sites, each island will have a number of community members trained on ESMP monitoring of construction works and empowered to report on the findings through established channels.
- iv. **GRM:** A Grievance Redress Mechanism has been designed and included in the ESMP. The GRM allows for traditional level and project level grievances to be lodged and provides structured guidance for managing resolutions. The field teams will interact regularly with the relevant people and organisations to achieve more efficiency and resolve any possible conflict.

C. Cost Effectiveness

There has been limited focus on determining the cost-effectiveness of climate change adaptation interventions within the Pacific. The long-term sustainability of the project outcomes and impacts expected as a result of the on-ground interventions delivered by the project will need to be supported by ongoing financial investment by key stakeholders within the Government of Kiribati and the international donor community more generally. Consequently, Activity 2.3 will focus on the determining the sustainability of water and sanitation programmes in climate change adaptation.

The Project will undertake a formal, systematic socio-economic benefit analysis, focusing at multiple levels, from national economy (GDP) scale to householder level within the island villages who are the primary beneficiaries of the project. The outputs of this analysis will provide estimates of 'return on investment' using a combination of standardised quantitative econometrics and related qualitative metrics comparing the current state, with no intervention (counter-factual) to one or more future states, following project interventions. It is expected the outputs will provide the economic rationale for future/ongoing investment in support of on-ground interventions to enhance long-term resilience of the outer islands of Kiribati in relation to climate change impacts on water security and sanitation. In summary this activity will include:

- Implementation of the Pacific Cost-Benefit Analysis Framework for Climate Information Services for Pacific Island Countries, as developed for GCF Vanuatu Project, including economy to household scale analysis of the impacts of project interventions
- Analysis of project adaptation scenarios compared with counterfactual scenarios without intervention, using General Equilibrium Analysis approach modified to suit Kiribati outer islands
- Data inputs from other activities in Component 1, 2, 4 to address triple bottom line (economic, social and environmental) outcomes as appropriate

Complementing the socio-economic benefit (SEB) analysis, the project will also collect and analysis additional information as needed through a series of focus studies, monitoring programme and data collection. The results of the SEB analysis, focus studies and the broader

monitoring programme implemented by the project will be shared with stakeholders and made publicly available through communication channels the project will establish.

D. Consistency with national strategies

Kiribati is a signatory to the Pacific framework for action on drinking water quality and health, with water, sanitation and hygiene a critical priority for action within the country. Furthermore, the Government of Kiribati has a well-established framework of sector policies, Ministerial strategic plans and operational plans at the national and island levels – all of which directly contribute towards the Kiribati Development Plan (KDP) and ultimately the Kiribati Vision 20 (KV20) (Figure 12).

Kiribati’s national policies related to three core sectors within this framework, are relevant to this Project – climate change, water and sanitation policies. This Project will contribute directly towards the achievement of goals within these sector policies and operational plans through these sectoral linkages. For example, at the highest level, the project will assist the Government of Kiribati to respond to the Kiribati Vision 20 (KV20) which stipulates all Kiribati households have access to potable water and suitable sanitation facilities by 2036. Through working in three islands under this funding, this Project will provide villages in three islands with equitable access to safe and sustainable water and developed approaches for suitable sanitation facilities by the whole-of-project end date.

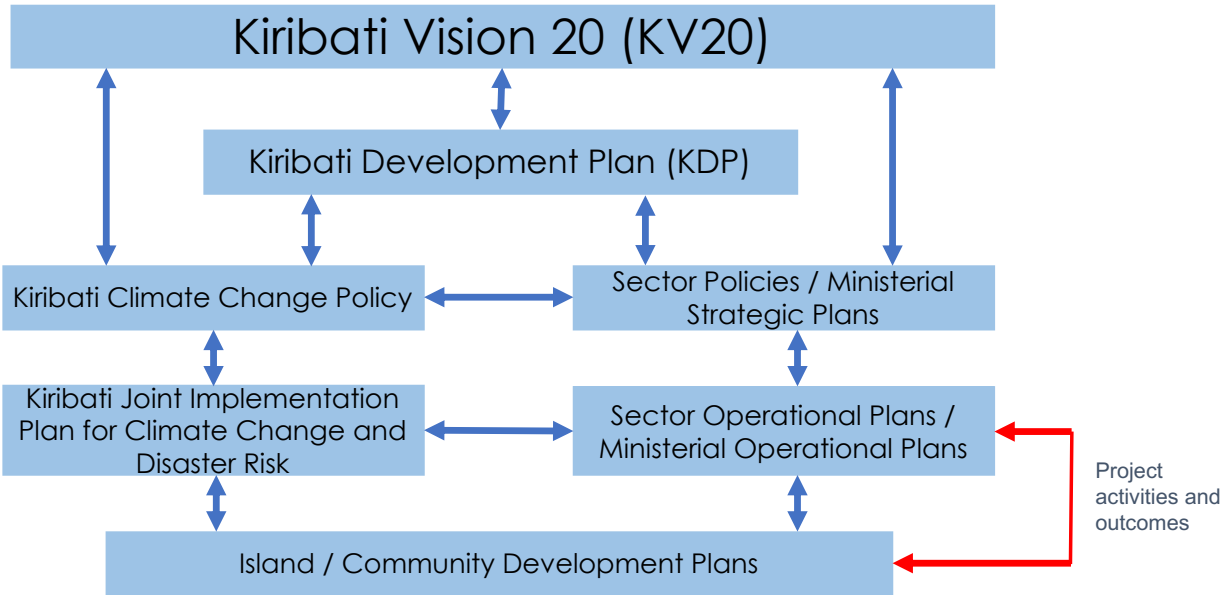


Figure 12. Illustration showing the integration of the drought response plans, water safety plans and asset management plans into the context of Kiribati policies and links to national frameworks and processes

Furthermore, the KDP identifies goals relating to reducing; (1) vulnerabilities to the impacts of climate change, (2) disaster risk and (3) incidence of communicable diseases through access to safe water and basic sanitation. The project is building the resilience of communities in the outer islands to climate change through the development of water and sanitation solutions which are

island and culturally specific and appropriate. Through the project capacity will be established for island communities to contribute towards the ownership, construction and maintenance of the facilities, thereby directly linking to the KDP goals of engagement, ownership and involvement of communities in the implementation of water and sanitation projects. Access to and the use of, safe water and basic sanitation will be improved for those target communities through the interventions, capacity building and training, and information.

The Project will also ensure it is contributing towards the goals of the Kiribati Climate Change Policy and the Joint Implementation Plan for Climate Change and Disaster Risk through the delivery of scientific evidence on water resource availability, future climate projections, and coastal inundation projections. The evidence base created by the project will inform the options for the best and most appropriate interventions in each island. The project responds directly to the five objectives outlined in the Climate Change Policy relating to water security: (i) Objective 1: Strengthen national water governance so all key stakeholders are enabled to perform their allocated functions in a coordinated manner to address all water issues, including the impacts of climate change, climate variability and natural disasters; (ii) Objective 2: Provide efficient harvesting systems and innovative solutions to water availability issues (water availability, quality and quantity); (iii) Objective 3: Enhance support and enforcement of regulations for water security and safety; (iv) Objective 4: Strengthen community engagement in safeguarding water sources, and; (v) Objective 5: Ensure access to improved sanitation facilities, including monitoring the impacts of pollution sources.

Lastly, the project will contribute towards a number of national sector policies including the National Water Resources Policy and the National Sanitation Policy. Both highlight the importance of and prioritise access to safe drinking water, and the urgent need to address these complex and critical issues through an “enlightened and coordinated approach led by the Government using a whole-of government approach and engaging the entire community particularly at the village and island level”⁶². By working with Government as the Executing Agency and instilling a coordinated approach utilising all relevant Government ministries and island mechanisms, the project will directly contribute towards the achievement of strategies under these policies.

Annex F identifies the links between the key Government of Kiribati policies and project components in more detail, confirming the strong alignment of the project to the Government policy framework.

E. Technical Standards

Compliance with National Technical Standards

The project will ensure compliance with Kiribati’s governing Acts and Policies relating to construction of infrastructure – the Building Act 2006 (directs all design proposals to be assessed by the Ministry of Infrastructure & Sustainable Energy), and the National Building Code of Kiribati (the technical standard to guide all design and construction work). Lessons learnt from previous projects has demonstrated the importance of working with the Government Ministry to ensure compliance with the National Building Code of Kiribati and the Building Act 2006.

In constructing the water and sanitation infrastructure, the project will work through the Ministry of Infrastructure and Sustainable Energy (MISE) who is responsible for the oversight and management of any water and sanitation construction in the outer islands. Furthermore, the

⁶² National Water Resources Policy 2008

project will operate within MISE’s procurement mechanisms to ensure the materials are standardised, of good quality and conform to the national building standards. The standardisation of infrastructure to ease future supplies, parts and maintenance issues. Additionally, all designs for infrastructure will be submitted and approved through MISE’s approval process. Under this process the Quality Control Inspection Unit and the Director of Engineering approve the design and issue building permits. The unit will also undertake the site inspections to ensure the construction is in compliance with the approved design and complying with the national building code. At the completion of the construction, the unit will issue a completion certificate.

Any requirements for environmental assessments will be identified in the Environmental and Social Management Plan for the project⁶³ (refer Annex G). The ESM Plan also ensures the project complies with the Environmental and Social Policy of the Adaptation Fund. The Project Management Unit will be responsible for ensuring the plan is implemented and will monitor and report annually on progress any risks and mitigation activities underway to mitigate the risks raised in the Plan. Additionally, a review of the ESM Plan will occur annually to ensure compliance, identify any new or emerging safeguards and to ensure the Plan continues to comply with the Adaptation Fund’s ESS Policy.

Compliance with the Environmental and Social Policy of the Adaptation Fund

Under Principle 1 of the Adaptation Fund’s Environmental and Social (ESS) Policy requires that the project activities comply with all relevant national laws. As such as review of the applicable law and standards has been undertaken and, where applicable, they have been carried forward into the ESMP and project planning process. Table 4 below outlines the standards and laws that have been assessed, their applicability to the project and how they have been incorporated into the project to ensure compliance.

Table 4. National Standards Applicable to the Project

Standard	Applicability	Comment
Environment Act 1999 (amended 2007)	<p>Focuses on controlling pollution and the impacts of development</p> <p>Objectives:</p> <ul style="list-style-type: none"> • To provide for and establish integrated systems of development control • Reduce risks to human health and prevent degradation of the environment by all practical means • To prevent, control and monitor pollution • Protect and conserve natural resources • Comply with regional and international conventions and obligations • Promote sustainable development • Control, manage and regulate hazardous substances 	<p>These are the main guiding national standards of sustainability, protection of the environment and social participation.</p> <p>The project complies with these standards through their incorporation into the governing ESMP.</p>

⁶³ The complete Environmental and Social Safeguards Plan is available from the Implementing Agency. Annex G provides details of the ESM Plan.

	<ul style="list-style-type: none"> Protect, conserve and promote heritage. 	
	<p>Environmental Impact Assessment (Part III): Determines environmental license process for proposed developments listed in the Schedule</p> <p>Deals with:</p> <ul style="list-style-type: none"> Application processes and considerations Requirements for EIA reports Amendments to proposed activities Conditions for environmental licenses 	<p>The proposed project activities are not listed on the Schedule therefore an Environmental License is not needed, however, the principles of this national requirement have been applied to the projects ESMP to ensure that both national environmental standards and the AF requirements have been met.</p>
Native Lands Ordinance 1956 (amended 2013)	<p>Governs the ownership of native lands in Kiribati</p> <p>Deals with leases of native land and surveys</p>	<p>This is applicable to the project as water interventions will be installed on private lands in many instances. Securing long term access to these lands through leases or easements will be critical in ensuring equitable access to the water.</p> <p>The requirements of this act are integrated into the project planning and the ESMP for land leases.</p>

The projects ESMP (included as an annex in this proposal) has been developed to guide the implementation of the project in a way promotes compliance with the national laws and the AF ESS Policy. To ensure this compliance with the ESMP the following measures will be applied:

Safeguards Supervision and Reporting: the ESMP has a weekly monitoring plan embedded in it. This monitoring will be carried out on a weekly basis at any active project sites on the outer islands. On each island there will be dedicated community members who will be trained in correct implementation of the ESMP and how to use the monitoring plan and checklist. The results of the weekly monitoring will be reported to the PMU who will, in turn include a summary of the results in their monthly reporting. The ESMP includes ESS reporting requirement, including instances of non-compliances, rectification measures and also reports on any grievances received and how those have been resolved.

Monitoring and Evaluation: Specific indicators on key social and environmental variables will be integrated into the project's results framework, thus ensuring compliance with the ESMP (and therefore the AF ESP). These indicators will be monitored regularly and will be documented and communicated to avoid being violated.

ESS Audits: During project implementation, there will be periodic audits carried out in country and at active outer island project sites to ensure that the ESMP is being correctly implemented and that the project is continuing to adopt an inclusive approach to community engagement. The audits will be undertaken by the IE who may choose to bring in international safeguard specialists to conduct the periodic audits.

F. Project Duplication

There is no known duplication of the project with other funding sources at the time of this proposal development. A number of projects have been identified as outlined below.

Water and Sanitation in the Outer Islands of the Republic of Kiribati (KIRIWATSAN): The KIRIWATSAN project undertook two phases with Phase II completed in July 2019. Phase II targeted 35 villages across 8 islands (refer Table 5) to install water harvesting and storage facilities and sanitation facilities. The target villages do not correspond with those targeted under this Project. In addition, this Project is to consider 3 of the 11 islands rather than the 8 islands under KIRIWATSAN. Synergies exist between the two projects in terms of lessons learned which have been incorporated into the planning for this project⁶⁴ and the potential (depending upon the islands chosen), for some information from the water assessments to be incorporated into the broader evidence-base under Component 1.

Table 5. Islands and Villages identified under AF Project and KIRIWATSAN Project

Island	Number of Villages on the Island	ADAPTATION FUND PROJECT Villages Identified		KIRIWATSAN Villages Identified	
		# of Villages	Villages	# of Villages	Villages
Makin	2	1	Makin	1	Kiebu
Butaritari	11	8	Kuuma, Keuea, Tanimainiku, Tabonuea, Taubukinmeang, Temanokunuea, Onomaru, Ukiangang	3	Tanimaiaiki, Antekana, Bikaati
Marakei	8	6	Rawannawi, Temotu, Buota, Bwainuna, Norauea, Antai	2	Tekarakan Tekuanga
Abaiang	18	13	Nuotaea, Takarano, Ubwanteman, Borotiam, Koinawa, Morikao, Taburao, Tebero, Tabwiroa, Tanimaiaki, Tebwanga, Aoneaba, Tabontebike	6	Taniau*, Tuarabu, Ewena, Aonobuaka, Tebunginako, Ribono
Maiana	12	4	Tekaranga, Tebwanga, Tebwangetua, Teitai	8	Tebikerai, Tematantongo, Aokibe, Temwangaua, Toora, Tebiauea, Buota, Bututei
Nonouti	9	6	Benuarua, Teuabu, Temanoku, Rotuma, Autukia, Temotu	4	Abamakoro, Tebuange*, Matabou*, Matag, Taboiaki
Beru	9	3	Rongorongu, Eriko, Taboiaki	6	Autukia, Tabaign, Aoniman, Nuka, Tereirio, Taubukinbe
Nikunau	6	2	Manriki, Tabomatang	4	Murubenua, Tabutoa, Rungata, Nikumanu
Tab South	6	6	Tewai, Taungaeaka, Buariki, Nikutoru, Katabanga, Takuu	0	n/a

⁶⁴ Lessons learned incorporated into the planning for this project (and consolidated into Annex A) are not restricted to the KIRIWATSAN project, but rather have been gathered from multiple sources.

Onotoa	7	7	Tekawa, Tanaeang, Buariki, Temoa, Otoae, Aiaki, Tabuarorae	0	n/a
Kuria	6	6	Oneeke, Marenaua, Tabontebike, Buariki, Norauea, Bouatoa	0	n/a

Notes: *Villages are named in KIRIWATSAN project document but are not in the 2015 Census

South Tarawa Water Supply (GCF (\$28m), ADB (\$13m), World Bank (\$12.96m)): the South Tarawa Water Supply Project aims to combat factors which result in the high incidence of waterborne disease in South Tarawa, the capital of Kiribati, through the delivery and effective management of new and rehabilitated climate-resilient water supply assets and improved hygiene practices. This project only focuses upon South Tarawa and does not include the outer islands. Potential synergies following an early discussion with the consultant includes the Government decision-making processes on water management, however, at this stage it is too early to ascertain clear connectivity with this outer island project.

Abaiang Island – A whole of Island integrated Vulnerability Assessment (GIZ, SPC, SPREP): This project assessed the capacity of Abaiang to adapt to environmental change and reduce community vulnerability to climate change and disaster risks. Findings within the Assessment have been incorporated into the planning considerations, noting however, each island is unique.

Drought Management & Response Plan, Abaiang Island (USAID, SPREP): The project developed the Drought Management & Response Plan for Abaiang. The Plan was the first of its kind in Kiribati and is to be treated as a pilot and a working document. As noted in this proposal, no other outer island has developed similar plans. The Abaiang plan will be used as a model for the Drought Management & Response Plans to be developed under this Project.

Kiribati Outer Islands Food and Water Project (IFAD) \$11.7m: The project was completed in 2018 and aimed to improve food security, child health and nutrition status. The project aimed to install water systems in Tab North (not a project site for this project), Nonouti and Abemana. Within six months of completion, only 54 out of 278 water systems had been installed and functioning. Much of this focused upon construction of water catchments rather than other options.

UNICEF WASH Programme: the UNICEF WASH Programme is shortly to commence roll-out into the outer islands through schools and medical facilities. As outlined in Component 3, this project will not duplicate the efforts of the WASH Programme, but rather work closely with the WASH Programme to assist in the rollout within the Project target communities, as well as extend into the broader community beyond schools and medical facilities through ‘train the trainer’ undertaken via the Ministry of Women, Youth and Social Affairs. In addition, lessons learned from the WASH Programme has been incorporated into the project planning, particularly in regard to sanitation options.

The potential for duplication is also reduced as all donor funded projects are required to be developed through the Ministry of Finance and Economic Development (MFED) which ensures that projects respond to the national priorities and do not duplicate effort.

G. Learning and Knowledge Management

The project will capture lessons learned and good practices through various mechanisms including:

1. The premise of the project in terms of undertaking the water and sanitation approach on three islands only with the intention to scale up under future funding opportunities, provides for an adaptive management and learning process to be continually feedback into the project's implementation and planning for the scaling up in the future.
2. The Project's monitoring and evaluation approach provides for real time monitoring and continual capturing of information
3. Each component and activity will capture and feedback any lessons and good practices into the implementation of the project
4. The phased approach through the scoping phase, platform development and implementation phase provides for adaptive management to take place, including incorporating any lessons or good practices into the project on a continual cycle.

Knowledge management, whilst focused in Component 5 for budgetary purposes will be a central, cross-cutting element across all activities. The knowledge management component will be responsible for the development and dissemination of project outputs to the appropriate stakeholders and will be involved in the development of training materials, plans and manuals. Any lessons learned from the dissemination and uptake of the outputs to the stakeholders will be captured through progress reports, field reports and the ongoing monitoring and evaluation.

H. Stakeholder Consultative Process

During the project planning phase, consultations were undertaken with a range of Government, NGOs, Island and community stakeholders. Stakeholders included the project Taskforce, Ministry personnel, NGO personnel. Due to funding and timing constraints, consultations within the islands were undertaken at three outer islands - Kuria, Abaiang and Maiana. The consultations included island council representatives, mayors, old men group representatives, women's group representatives, women's island officers, and youth representatives. The island visit and consultation highlighted the requirement for further consultations at all islands under this project during the scoping phase. The consultations undertaken focused upon the communities' water and sanitation experiences, expectations and vision, gender and social development, environmental and social safeguard considerations and other relevant information required to design the project.

The list of stakeholders consulted included:

Island	Community	Government	NGO / Projects
South Tarawa	n/a	<ul style="list-style-type: none"> • Office of the President / Climate Change Unit • Ministry of Finance and Economic Development (MFED) • Climate Finance Division, MFED • Ministry of Infrastructure and Sustainable Energy • Ministry of Women, Youth and Social Affairs (MWYSA) • Ministry of Health (MoH) • Ministry of Environment • Ministry of Internal Affairs / Local Government Division (MIA) 	UNICEF KIRIWATSAN Project (SPC)

		<ul style="list-style-type: none"> • Ministry of Internal Affairs / Rural Planning Development • Kiribati Meteorological Services (KMS) • Ministry of Environment / Land and Agriculture Development, Environment & Conservation Division (MELAD) 	
Kuria	Island Council Mayor Island Council Clerk Old Men's Group Women's Groups Youth representative	Water Technician	USAID Drought Management Project
Abaiang	Island Council Mayor Island Council Clerk Old Men's Group Women's Groups Youth representative	Water Technician	n/a
Maiana	Island Council Mayor Island Council Clerk Old Men's Group Women's Groups Youth representative	Water Technician	n/a

I. Justification for Funding Request

This project aims to build resilience in local communities residing in the outer islands of Kiribati, through the development and application of science-based evidence to inform on-ground adaptation interventions that reduce exposure and increase adaptive capacity to climate and environmental stressors. The outer islands in question are remote and subject to a range of climate and other environmental stressors which have yet to be fully assessed or quantified in a way that the full socio-economic benefits can be determined. There maybe be insufficient data and information currently available to define either a baseline or 'with-project' scenarios based on the proposed interventions. That said, it is a fact that the lack of secure water and culturally acceptable sanitation practices, in these outer islands, is placing increased pressure on the economy, and the social wellbeing of the local communities. This tension is aggravated further by the significant additional costs of repatriating community members to Tarawa for medical treatment that is otherwise unavailable in the outer islands. Over the longer term, the habitability of these islands is being impacted by a combination of broader environmental and social stressors, which if not adequately managed will be compounded by climate change, that acts as a stress multiplier. The effect of climate change on these environmental stresses is to bring forward or accelerate the need for relocation (which by association has its own social, economic and environmental impacts). On-ground interventions that can enhance the habitability of the outer islands over the longer term will intuitively provide more cost-effective outcomes for local communities, the Government of Kiribati and relevant donors/development partners when considering related development and associated climate finance options.

Socio-economic cost benefit analysis of the proposed interventions provides a compelling, economic evidence-based rationale for the project. Indeed, it is expected that the evidence produced by the assessment will provide the basis for ongoing investment in supporting the

maintenance and further development of on-ground interventions around water and sanitation on the outer islands once this project is completed. It is expected this evidence would inform decisions by the island councils, the Government of Kiribati and relevant donors for purposes of facilitating ongoing investment and long-term sustainability of expected project outcomes. For this reason, the project design has incorporated a specific activity to undertake socio-economic cost-benefit analysis to quantify both top down, national economy-wide impacts and bottom up household micro-simulation of the proposed interventions (Activity 2.4). This activity will use best practice economic modelling methods informed by multiple data sources linked directly to the project activities and on-ground interventions to ensure alignment with expected on-ground impacts. The proposed methodology will be based on an approach developed specifically for the Pacific through previous work in Vanuatu funded by the GCF (*Framework for Undertaking Socio-Economic Cost-Benefit Analysis for Climate Information services in the Western Tropical Pacific*, CSIRO 2018, <https://www.pacificclimatechangescience.org/publications/reports/>). This methodology includes provision for, including local and national investment and development policies, the analysis of on-ground adaptation interventions incorporating application of CIS to inform decision-making, compared with counterfactuals without CIS informed adaptation interventions. This framework will be employed as part of this Activity and the outputs will inform the Project Monitoring and Evaluation planning and associated Project Log Frame/Results Framework and governance arrangements around adaptive project management to ensure the expected outcomes are realised

J. Sustainability

The project will ensure activities implemented are owned by the end-users / stakeholders i.e. Government of Kiribati, Island Councils and villages in the outer islands, to ensure their sustainability, scalability and impacts. In particular, the project aligns directly with the Government of Kiribati's KV20 and national development, climate and sectoral plans and policies (refer Section D). Through the embedding of the project's outputs directly into Government and Outer Island policies and plans (e.g. Drought Response Plans, Water Safety Plans and Asset Management Plans), this will contribute towards the long-term sustainability of the project's outcomes and outputs.

Secondly, the project will be working closely with Government of Kiribati ministries and the Outer Island councils to develop a joint decision-making framework (Activity 4.1) designed to achieve coordinated leadership and action for the supply of safe, adequate and financially, technically and environmentally sustainable water services to the outer islands. The development and implementation of the Drought Response Plans and Water Safety Plans, will further cement the institutional arrangements and roles into a clear joint decision-making framework.

Thirdly, the project has a very clear gender and social inclusion stream which ensures all community members are able to participate, contribute and feel ownership of the project in particular, the water and sanitation interventions. In particular, the project will be working directly with communities to encourage a community-led approach for sanitation solutions.

Fourthly, exploration of options for the on-going maintenance and upkeep of the water harvesting and supply facilities outside of the historical method of 'user-pays' (i.e. currently the outer island villages are responsible for the raising of funding to cover the maintenance of the facilities) will be undertaken.

Lastly, the project will ensure there is instilled into the project, a strong capacity building element consisting of formal training and informal on-the-job training for Government of Kiribati personnel

and, mentoring of Government personnel, water technicians, and outer island personnel by project personnel, in particular the regional partners undertaking specific activities.

K. Environmental and Social Impacts and Risks

An overview of environmental and social impacts and risks identified as relevant to the project is summarised below. A more detailed and activity-based assessment of potential risks and impacts is provided in the project’s Environmental and Social Management Plan (Annex G). The table below identifies which of the Adaptation Fund’s ESP Principles are triggered by this project and therefore require no further assessment, and which Principles are triggered and therefore require additional assessment and/or management through implementation of the ESMP.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>		√
<i>Access and Equity</i>		√
<i>Marginalized and Vulnerable Groups</i>		√
<i>Human Rights</i>		√
<i>Gender Equity and Women’s Empowerment</i>		√
<i>Core Labour Rights</i>		√
<i>Indigenous Peoples</i>		√
<i>Involuntary Resettlement</i>	√	
<i>Protection of Natural Habitats</i>		√
<i>Conservation of Biological Diversity</i>	√	
<i>Climate Change</i>	√	
<i>Pollution Prevention and Resource Efficiency</i>		√
<i>Public Health</i>		√
<i>Physical and Cultural Heritage</i>	√	
<i>Lands and Soil Conservation</i>	√	

Principle 1: Compliance with the Law

All projects supported by the Fund shall be in compliance with all applicable and domestic laws.

The AF ESP Guidelines state that this principle is triggered by all AF funded projects or programmes. Although, according to national environmental legislation, the project does not require an Environmental License for its activities, it will still need to act in compliance with the various requirements as outlined above in Section E. The two key risks to non-compliance with the law are:

- i. Failure to follow the formal process for identifying and securing long term access to lands for installation of water investments. The risk here is the viability of access to water for the target households should the correct legal process not be followed in securing the land.

The failure to do so leaves the project beneficiaries vulnerable to the loss of access should the landowner chose to deny it and also the loss of physical investments (well heads, pumps, tanks, etc) installed on lands legally still belonging to the landowner through them laying legal claim to ownership of it.

- ii. Construction of water security investments will create opportunities for pollution of water and soils from concrete slurry and also pollution from poor solid waste management practices.

The project has been planned to incorporate the national legislation, thereby ensuring a legally compliant project plan. To ensure a legally compliant project design and implementation phase, the projects ESMP integrates the legal requirements with the AF safeguard requirement to provide complete management measures to comply with this principle. The ESMP Monitoring Plan will monitor for ongoing compliance with the law throughout design and implementation.

Principle 2: Access and Equity

Projects/programmes supported by the Fund shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. Projects/programmes should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups

Equitable Access to the installed water security investments will be a crucial guiding principle for the selection of all installation sites and the process of allocating access to these project benefits will be fair and impartial. A fair process treats people equally without favouritism or discrimination, and an impartial process treats all rivals or disputants equally.

The exact sites for installation of water security interventions in the Outer Islands are not yet determined. If the site selection and consultation process detailed in the ESMP is not correctly implemented, then there is the risk that there may be unintended bias from the consultations and therefore a lack of access and equity to the improved water resources.

Lessons learnt from previous projects has demonstrated that installing water tanks, or similar, on buildings such as churches or schools can often lead to limits or restrictions being put on access to these water tanks. Direct examples of this are churches limiting access to members of their own congregations, or limiting times that water can be collected, and installations in school compounds where the water has been sold to help raise funds for the school. This project will be designed and implemented in a way that will not impede access of any group to the essential services and rights mentioned in the principle.

Additionally, community consultations have highlighted the need to ensure that all community groups, particularly youth, are provided with access to training and capacity building opportunities. Failure to target the youth, as well as women, means that the younger generation, who are often the member of communities carrying out the physical work, are not engaged in any of the decision making or technical processes related to project work. Not only does this risk disenfranchising the youth groups, but it is also a missed opportunity to train the next generation of the communities.

To address these risks and impacts, the project ensures that equity begins with the project staff, and then with the approaches and processes in design and finally in project implementation. The principles of access and equity have been captured in the projects ESMP which all project staff and relevant community members will receive training on.

The intervention process of the project is designed to bring benefits to vulnerable communities in a staged approach to first level the playing field of basic access to water ('low hanging fruit') and then with a longer term strategic approach to climate resilient water security with fair and equitable access to activities, equipment, resources and training throughout both planning and implementation phases.

All groups who have requested participation during the consultation process have an equal opportunity to access to the training and capacity building activities proposed by the project. All target groups will also have equal opportunity to participate in the consultation and engagement activities of the project through considerate and appropriately planned, specifically targeted sessions.

Equitable access requirements of the project have been clearly and transparently communicated with communities, relevant stakeholders, Island Council and government agencies.

The projects M&E Framework will measure developments related to 'access and equity' throughout the project duration and the project will be adaptive should the evaluations require changes.

The ESMP demonstrates compliance with this principle by describing the process of allocating and distributing the interventions and by showing how this process ensures fair and impartial access to benefit. It includes management measures to ensure fair access, transparency and equity throughout implementation, clearly stating there will be neither discrimination or favouritism in accessing project benefits.

Principle 3: Marginalised and Vulnerable Groups

Projects/programmes supported by the Fund shall avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project/programme, the implementing entities shall assess and consider particular impacts on marginalized and vulnerable groups.

Through its equitable access approach, the project focuses on marginalized and vulnerable groups (women, youth, elderly, disabled etc.) and aims to assist them to improve their water supply and sanitation access thus their living conditions. The project will be focusing on reducing the specific impacts of climate change by building resilience in the water security, with both individual households and community services. In this way, all vulnerable groups are expected to be positively impacted. The project does not have negative impact on these groups.

Principle 4: Human Rights

Projects/programmes supported by the Fund shall respect and where applicable promote international human rights.

The AF ESP Guidelines state that this principle is triggered by all projects funded by the AF. The AF bases this principle on the United Nations Declaration of Human Rights and requires that at a minimum, and regardless of whether the country is party to them. The Republic of Kiribati has ratified three of nine core human rights treaties of the UN. The three ratified treaties are the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), the Convention on the Rights of the Child (CRC) and the Convention on the Rights of Persons with Disabilities (CRPD).

The AF request that all nine-core treaties are applied to all projects regardless of whether the beneficiary country has ratified them or not.

The project affirms the fundamental rights of people in targeted areas, and thus does not affect their freedom. Furthermore, the project does not integrate any activities contrary to custom law or traditions. Participation in the project will be participatory, voluntarily and free.

The project affirms the fundamental rights of people in targeted areas, and thus does not affect their freedom. Furthermore, the project does not include any activities contrary to the custom law or traditions.

Necessary monitoring for this principle is limited to those parameters already included in the ESMP Monitoring Plan.

Principle 5: Gender Equity and Women's Empowerment

Projects/programmes supported by the Fund shall be designed and implemented in such a way that both women and men 1) have equal opportunities to participate as per the Fund gender policy; 2) receive comparable social and economic benefits; and 3) do not suffer disproportionate adverse effects during the development process

The project's Gender Strategy and Action Plan (Annex A) addresses potential gender inequality risks and promotes women as project beneficiaries through provision of targets for female participation in community discussions/consultations on the design and implementation of water supply improvements; female participation in implementation and monitoring. Key strategies in the project for promoting gender equity through the project will be through capacity building and institutional development, facilitating gender analysis of issues and women's participation, and capturing and reporting on gender outcomes.

Principle 6: Core Labour Rights

Projects/programmes supported by the Fund shall meet the core labour standards as identified by the International Labour Organisation.

The Republic of Kiribati is a member of the International Labour Organisation and has ratified 7 fundamental ILO conventions. In line with the ILO, the country has enacted the Employment Act to protect labour rights in aspects of forced labour, freedom of association and protection of the right to organise, right to organise and collective bargaining, equal remuneration, abolition of forced labour, discrimination (employment and occupation), minimum age, and worst forms of child labour.

The project will be implemented in compliance with legislation including the Employment Act. No child labour nor forced labour is expected to result from this project. Core labour rights concern gender, respect, work hours, etc., and any labour standard will be observed and respected on infrastructure interventions.

Necessary monitoring for this principle is limited to those parameters already included in the ESMP Monitoring Plan.

Principle 7: Indigenous People

The Fund shall not support projects/programmes that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples.

Most of the population of the project sites are indigenous, in the sense of having ancestral attachment to their land which is still important in the livelihoods of the majority who are rural dwellers. This reliance on natural resources and both customary and legal rights are recognised under national law.

As Indigenous Peoples are the overwhelming majority of direct project beneficiaries safeguard measures have been integrated into the project's overall design through the ESMP. They include: (i) Free, prior, and informed consultation leading to broad community support during project preparation; (ii) Measures to ensure culturally appropriate processes and benefits; (iii) Measures to ensure that adverse impacts are mitigated and (iv) Measures for disclosing key project documents in a language understandable to them.

Community consultation and regular engagement with the community is integral and the ESMP stipulates that this will be undertaken through the life of the project.

Principle 8: Involuntary Resettlement

Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.

Water supply and sanitation services do not require any resettlement so there will be no voluntary resettlement under the project. Any long-term access to lands for installation of infrastructure will be secured through formal and legally binding agreements with the landowners.

The ESMP stipulates the process for securing land and monitoring will ensure that no installations are made on land without an agreement already being in place. Although no resettlements are necessary for the activities, this will be closely monitored. Frequent monitoring and regular consultations will identify risks of resettlement, including to physical natural assets and economic/livelihood activities, and manage potential risks as per the ESMP.

Principle 9: Protection of Natural Habitats

The Fund shall not support projects/programmes that would involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.

Installation of water security interventions will be carried out on areas already under usage. The project will work with measures for water conservation to limit the runoff and soil erosion during construction works.

The project has the potential to cause negative impacts on biophysical environment (such as noise, pollutants or solid waste during construction), if activities are not monitored correctly.

The risks to natural habitats are expected to be low and short term and will only occur during the construction work, which are expected to be minor in themselves. The ESMP includes provision for monitoring on natural habitats throughout the project.

Principle 10: Conservation of biological diversity

Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species

The inhabited islands of Kiribati are all modified from their natural state due to the nature of subsistence living on the islands. Original vegetation has been converted into plantations and crop areas and therefore the terrestrial biodiversity is not considered significant or unique. The physical works proposed under this project will occur on inhabited islands of Kiribati and works will be small scale in nature. As these small, isolated, inhabited islands are already considered disturbed, altered or farmed there is no potential of a significant or unjustified reduction or loss of biological diversity. There will be no introduction of invasive species for this project.

Principle 11: Climate Change

Projects/programmes supported by the Fund shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change

The main drivers of climate change that are considered by the AF under this principle are the emission of carbon dioxide gas from the use of fossil fuel and from changes in land use, methane and nitrous oxide emissions from agriculture, emission of hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride, other halocarbons, aerosols, and ozone.

This is not applicable to the project.

Principle 12: Pollution Prevention and Resource Efficiency

Projects/programmes supported by the Fund shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.

Installation of water security investments will require the production of concrete which has the potential to pollute soil or water if the concrete wastewater or slurry isn't correctly managed. The ESMP provides the measures that must be implemented to avoid spillage and pollution.

During construction of water infrastructure other impacts can occur (noise, solid waste, wastewater, dust, accidents, etc.)

The environmental integrity (air pollutants, oil spill, wastewater, noise, solid waste) will be monitored and proper measures will be put in place according to the ESMP.

Principle 13: Public Health

Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids potentially significant negative impacts on public health.

By supplying more and better water and sanitation services it is expected a positive impact in public health of selected communities, due to water-related diseases and vectors. Proposed education and training in water management and planning at community level can be extended to prevent water-related diseases (amoeba, cholera, etc.) and vectors as mosquito, avoiding Zika, Dengue, Malaria, Majaro, etc.

There is a risk that water storage facilities may increase mosquito habitats, which carry vector-borne diseases. The ESMP contains measures to specifically avoid mosquito and vector risks.

All Program workers (staff, personal, technicians, extension agents, labours and consultants) will be equipped with safety equipment to protect them, according the potential risk of their respective tasks.

Principle 14: Physical and Cultural Heritage

Projects/programmes supported by the Fund shall be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level. Projects/programmes should also not permanently interfere with existing access and use of such physical and cultural resources

Is not foreseen any adverse impacts on physical and cultural heritage of the people in the targeted areas. As the project activities are designed through a participative approach and with support of key government institutions chances to damage any physical assets are practically zero.

Principle 15: Soil and land conversion

Projects/programmes supported by the Fund shall be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.

There are no particular fragile lands that would be lost nor degraded by the project activities.

The capacity building sessions and education material produced by the project will include manuals for repairing and maintenance infrastructure. The cleaning and maintenance of guttering and water tank systems will also to reduce erosion (especially during periods of heavy rain).

Clearing areas for construction activities has a risk of exposing land to erosion, however this will be small in scale and mitigation measures stipulated in the ESMP can reverse potential impacts.

Categorisation

Based on the above presented findings, from an environmental and socioeconomic risks perspective, the project is ranked as Category B (across all components). The impacts and design of the program are not overall high risk when evaluated against the ESP principles. Risks identified at this stage have potential adverse impacts that are fewer in number, smaller in scale, less widespread, reversible or easily mitigated. However, the project design and budget allocations have been designed to focus on those areas with moderated or potentially low risks.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Project Implementation Arrangements

Project Implementing Agency

The Secretariat of the Pacific Regional Environment Programme (SPREP) will undertake the responsibilities of the Adaptation Fund Project Implementing Agency for the Project. SPREP will provide management, financial and technical oversight through a Task Manager. The Task Manager will be responsible for project oversight, undertake supervision missions and monitor and report progress to an internal Task Team Group, consisting of staff with relevant expertise (i.e. SPREP Project Review and Monitoring Group). SPREP, as the Adaptation Fund IA, can help to ensure the results of the project are distilled and disseminated regionally, within the AF and other agency channels to promote uptake of information in country dialogues.

Project Executing Agency

The Ministry of Infrastructure and Sustainable Energy (MISE) has been nominated by the Government of Kiribati as the Project Executing Agency (PEA). The PEA will establish the Project Management Unit (PMU) - a fully dedicated team to oversee project implementation including the management and oversight of all activities undertaken by the technical experts / organisations; project procurement including contract administration and management; project monitoring and evaluation; oversight of all engagement, outreach and communication activities, and; future planning (including development activities to identify future co-financing and new partnerships). The PMU will also act as the Secretariat for the Project Steering Committee and Technical Steering Committee and will assist these Committees in undertaking their responsibilities.

Project Management Unit

The Project Management Unit (PMU) core staff will include a: Project Manager, Project Officer and Finance Manager - who will assist the Project Manager in the daily management and implementation of the Project and activities. An Monitoring & Evaluation Officer will also be appointed to undertake the implementation of respective activities (Figure 13). Other staff (i.e. Data Officer, Administrative Officer) may also be involved or appointed on a part-time or casual basis as the Project develops.

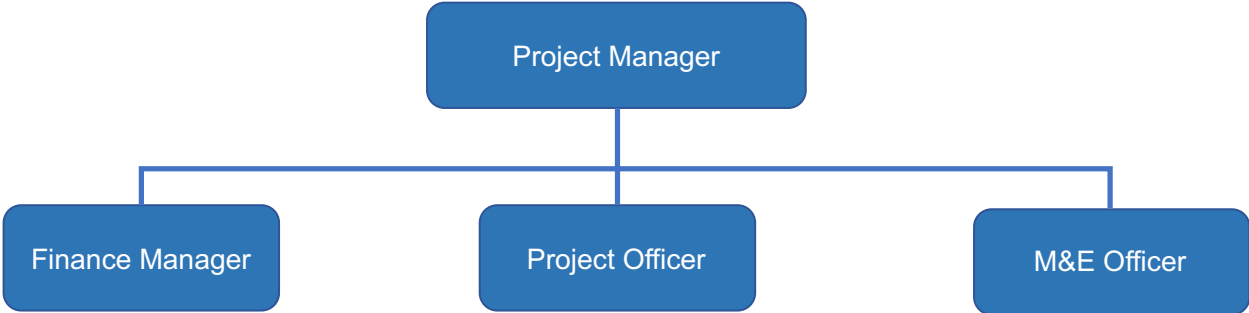


Figure 13. Project Management Unit structure

The Project Manager will provide oversight and management of the operations of the project. A Project Officer position will be established to support the Project Manager in the day-to-day operations of the project.

Due to the many activities involving procurement and sub-contracting, the project will recruit dedicated finance and procurement staff to ensure the PMU has the required capacity to manage the finances as per the SPREP and AF requirements. The Finance Manager will be responsible for ensuring the project’s financial and administrative procedures comply with AF and SPREP guidelines.

Technical specialists including an infrastructure specialist (Technical Coordinator) and a knowledge management specialist will be employed to work with the PMU and broader project team providing on-ground technical assistance. The Technical Coordinator will be recruited to support the Project Manager through the oversight and management of the activities under Component 1, 2 and 3 i.e. developing the evidence-base for decisions on water harvesting and supply, constructing the infrastructure required and providing input into the sanitation pilot programme. This will also include overseeing the contracts for construction supervisors, foremen and other consultancies as required. The Technical Coordinator will work closely with the Implementing Partners to ensure coordination and integration across the activities. The Technical Coordinator will be responsible for managing and supervising the construction supervisors, foremen and other associated roles with the implementation of interventions under Component 2.

In addition, the PMU will hire as appropriate, short-term and long-term consultants to undertake key activities, e.g., to provide technical expertise; monitor and evaluate the project’s progress; undertake the scoping studies required, and; oversee capacity building efforts in the outer islands.

Table 6. Estimated project management costs

Execution Activity Role	US\$
Project Management Unit Staff	
Project Manager	\$176,600
Finance Manager	\$149,000
Project Officer	\$134,200
Project Meetings, Workshops, Forums	
Project Steering Committee meetings	\$47,000
Workshops / Project Forums / Meetings	\$10,000
Monitoring & Evaluation	
Monitoring & Evaluation Officer	\$134,200
Final evaluation	\$50,000
Travel and Office costs	
Financial audits	\$20,000
Travel	\$39,000
Office equipment and supplies	\$36,000
Total	\$796,000

Implementation Partners

There are a number of Project partners who will support the Executing Agency through the provision of technical expertise and be responsible for undertaking specific activities. These partners will be providing not only expertise and relevant skills in the required areas, but also considerable co-financing to the activities. To-date, these partners include:

- a. Commonwealth Scientific and Industrial Research Organisation (CSIRO): CSIRO is a core partner and providing substantial co-financing. As such, CSIRO will be contracted to undertake activities in Components 1 and 4.
- b. UNICEF WASH programme: Early discussions with Kiribati WASH indicated an interest in partnering on the implementation of the WASH Programme in a 'whole-of-island' approach in the outer islands. The WASH programme will lead on the implementation of WASH programmes in schools and health facilities in the outer islands and will train other Project implementers in WASH techniques for implementation to additional sectors in the outer islands (refer Activity 3.3). The WASH Programme will also be a critical partner in the development and implementation of the Water Safety Plans (refer Activity 4.3).

Given the investment of resources these partners will be contributing towards the implementation of activities, these organisations will be viewed as full project contributors and partners. In recognition of the financial and technical contributions, a representative from the Implementing partner organisations will be provided with a seat on the Project Steering Committee.

Implementation of Activities within the Outer Islands

The PMU will lead the project team in engaging with and coordinating the implementation of activities in the outer islands, through the established decision-making mechanisms on each island as detailed in the Community Engagement Plans. In all cases, the formal decision-making mechanism the Project will operate through will be the Island Councils. The relationship with the Island Councils will be important in assisting and supporting the on-ground roll-out of activities and the working with target villages on the islands.

Governance Structure

Project Steering Committee

To adhere to the governance requirements for the project, a Project Steering Committee (PSC) will be established (Figure 14). The PSC will provide the independent approval process for the annual work plans and funding allocations, as well as provide advice on how best to link the project outputs to national policy and management mechanisms.

The Steering Committee will consist of representatives from stakeholder Ministries, Implementing Agency and project partners including:

- Ministry of Infrastructure and Sustainable Energy (Chair),
- Office of the President,
- Ministry of Health, Ministry of Women, Youth and Social Development,
- Ministry of Internal Affairs,
- Ministry of Finance and Economic Development, Climate Finance Division,
- Ministry of Environment, Land and Agricultural Development, Environment & Conservation Division, and

- Kiribati Meteorological Services.
- Secretariat of the Pacific Regional Environment Programme (SPREP)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- UNICEF Kiribati WASH Programme

The PSC will convene once a year to review annual work plans and budgets and make decisions about resource allocations consistent with performance and priorities agreed to by the group as a whole. Terms of reference for the PSC will be developed and included in the Implementation Manual (to be developed during the inception period).

Island Councils

The Island Councils are established under the Local Government Act 1984. The Councils include elected representatives and representatives from the *unimwane* (old men) and have established a rotating seat for either a woman or youth representative. The Island Councils are oversighted by the Ministry of Internal Affairs, which will enable the outer islands to feedback formally to the project process. The Ministry of Internal Affairs will be represented on the Project Steering Committee and be expected to report on any issues or feedback from the outer islands concerning this project through this mechanism and directly to the Project Management Unit.

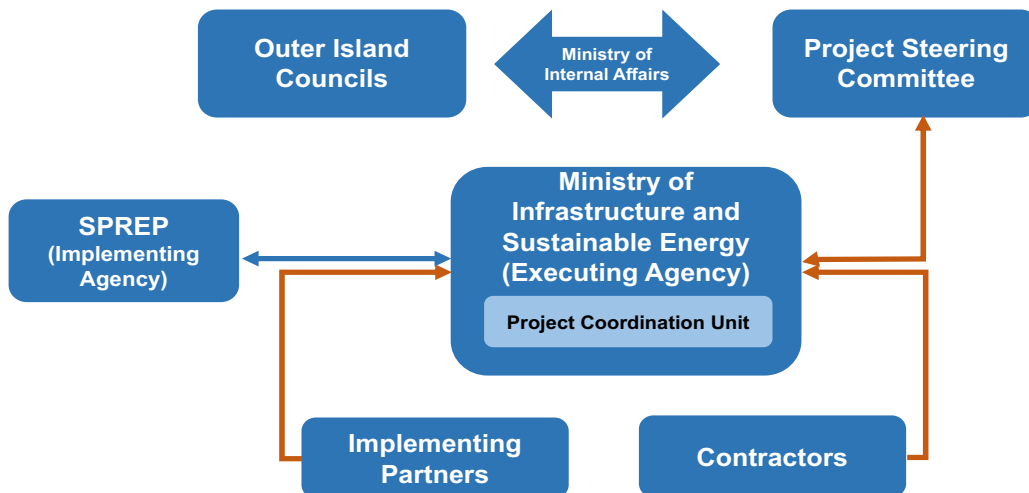


Figure 14. Governance and Reporting arrangements

Project administration mechanisms

Financial Management and Disbursements

Financial Management

The Government of Kiribati is a Direct Access Entity under the Green Climate Fund and has successfully passed a Financial Management Capacity Assessment. As such, a full Financial Assessment of the Project Executing Agency's capacity to meet the Implementing Agency's (i.e. SPREP) Financial Management standards will not be required. However, a review of the FMCA results will be undertaken during the inception phase.

Disbursements

Funds flow from SPREP to Government of Kiribati: The Ministry of Finance and Economic Development (MFED) shall be the principal recipient of the funds from Implementing Agency (SPREP) (Figure 15). The funds shall be deposited in accordance with the disbursement arrangements described in the Head Agreement. MFED shall be responsible for the formal reporting back to the Implementing Agency, and for the funds disbursement to the Project Executing Agency (Ministry of Infrastructure and Sustainable Energy).

Funds flow from PEA to implementing institutions and individuals: A major portion of project funds will be disbursed through contracts to project participating organizations and individuals to fund activities as outlined under the approved Component work programs. These funds will cover costs including, for example, salary costs, fieldwork activities, interventions, travel, workshops, training opportunities, and communication and outreach activities. Disbursement of funds from the PEA to the implementing organizations or individuals will be based upon signed contracts between the Ministry of Infrastructure and Sustainable Energy and the implementing institution or individuals (Figure 15). These agreements will follow approved policies and procedures for selection of consultants, and the project account(s) will be audited.

In some cases, e.g. regional and international implementing partners, it is not possible for the Government of Kiribati to undertake the contracting. In these cases, the contracting will be undertaken by the Implementing Agency to the Implementing Partner(s) (refer to the procurement section).

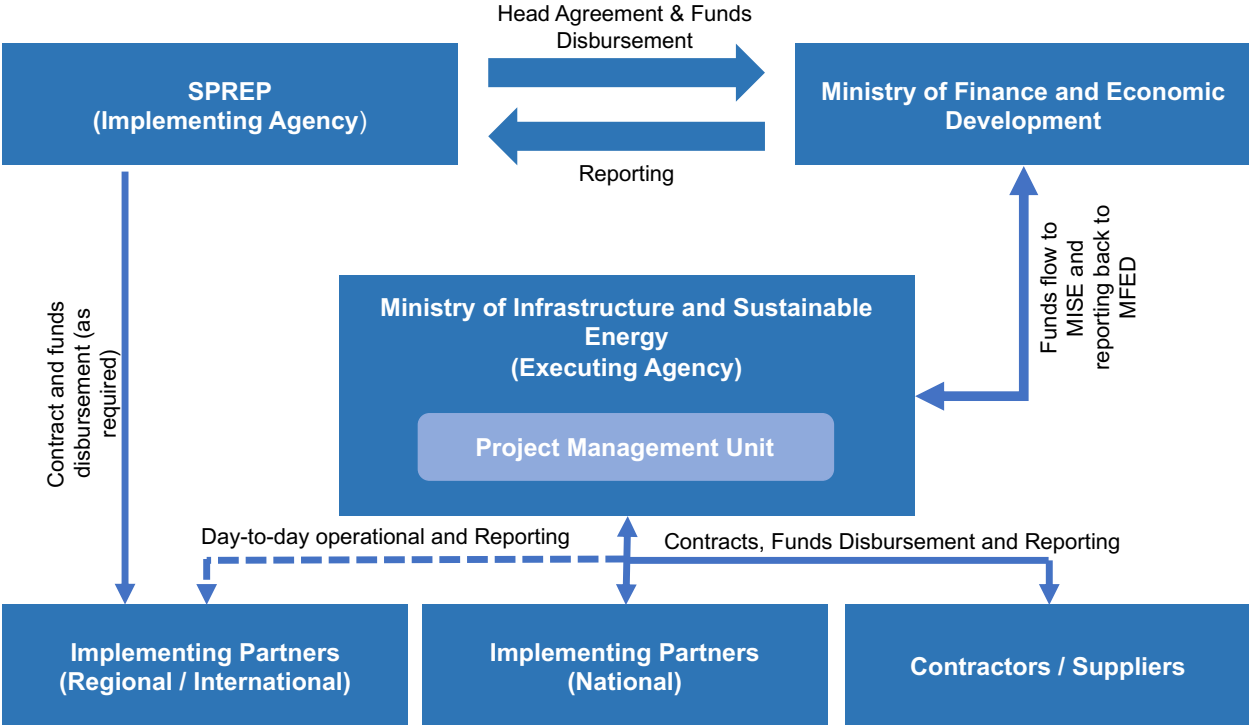


Figure 15. Schematic illustrating proposed contracting arrangements, funds disbursement and reporting

Procurement

Given internal organisational requirements relating to the contracting of international / regional expertise through organisations or individuals to undertake activities outlined in the project plan, it is recognised the Implementing Agency (SPREP) may need to undertake some procurement and contracting of these organisations / individuals on behalf of the EA. With the exception of these cases, all procurement will be undertaken by the Project Executing Agency / PMU to undertake the activities outlined in the implementation plan.

Procurement guidelines of the Government of Kiribati are to be adhered to. A procurement capacity assessment will be conducted on the Ministry of Infrastructure and Sustainable Energy (MISE) during the inception period to ensure MISE has adequate capacity to carry out procurement activities related to the proposed project.

Procurement plans detailing costings against the expenditure categories, procurement arrangements and the budgetary allocations against each category will be provided to the SPREP Task Manager on an annual basis or as required (i.e. when amendments have been made). A draft procurement plan will be developed by the PMU during the inception phase.

B. Financial and Project Risk Management

The core institutional, project and financial risks have been identified and are outlined in the interim Project Risk Management Plan at Annex H. The Plan will be updated by the Project Management Unit during the inception phase.

C. Environmental and Social Risk Management

According to the assessment undertaken against the AF ESS Policy, the project has a risk rating of Category B meaning that it can have minor (or easily reversible) environment, social or gender impacts. These risks and impacts have been evaluated during the preparation of this project proposal and includes the Environmental and Social Management Plan. This report is attached to this document as Annex G.

The ESMP focuses on process-oriented risk management, where the mechanisms are incorporated into the program's implementation to ensure that rigorous risk assessment and management measures are applied to each intervention, as they defined, approved and implemented across the relevant activities.

Screening for Interventions

During implementation of the project, a checklist will be used for the regular examination of the components and activities. A screening checklist has been prepared for the EE PMU and is included in the ESMP. This document attempts to apply the 15 Principles of the AF ESP to all proposed water security and sanitation interventions as they are designed, in a way that the PMU can easily understand better what they are trying to achieve and the AF objectives.

Community Engagement

Critical to the management of risk during project design and implementation is the continual, inclusive and well-planned consultation and engagement plan. The plan is aimed at early and consistent stakeholder involvement and engagement with particular focus on the target communities, including women, youth and vulnerable groups. The ESMP has a detailed Community Engagement Plan which identified responsibilities, timeframes, milestones and objectives. The PMU will be resourced with a Gender Officer and a Knowledge Management and

Outreach Manager who will both be tasked with facilitating all community consultations. It is also proposed that a Community Liaison Officer (utilising established networks) be established on each of the target outer islands to ensure that communications between the PMU and the communities are regular and meaningful.

The PMU will ensure that marginalised and vulnerable groups in the targeted areas are included in public consultations, holding smaller focus groups as necessary, including: the disabled, single mothers who are heads of households and the elderly

Land Access

Lessons learnt from previous water investments highlight that previous investments have been installed on private land without any formal agreements between MISE and the landowner which brings about a risk to secure long term equitable access to the resource. The project requires that no infrastructure can be installed on any lands without a formal agreement in place with the landowner. The process for securing the land is detailed in the ESMP and will be carried out during the initial scoping phase of the project to prevent delays during installation.

Grievance Mechanism

The ESMP has established a complaints procedure, which will be the Grievance Redress Mechanism (GRM). Complaints pertaining to the project activities implemented with AF resources will be addressed to executives of the PMU. The GRM is designed to ensure that members of the public can submit grievances to the PMU via email, in writing, by telephone or in person. Additionally, it is designed to account for the traditional complaints processes in villages by which community members can submit grievances directly with their Island Council, or village leaders who will, in turn, then forward the complaint to the PMU. The five-step grievance management process will be applied to the project by the following process.

Step	Application/How	Responsibility
Publicise the GRM process	Develop a procedure which explains how the grievance mechanism will work on the specific project site	SPREP, MISE
	Present the grievance mechanism at a public meeting help with affected communities	MISE PMU
Receive and register	Identify locations to receive grievances and ensure accessibility to all affected stakeholders	Receiving authorities (Island Councils, Village Leaders, Construction Supervisors), MISE PMU
	Recognise that some grievances may be submitted in writing while others will be communicated verbally. All grievances are to be treated with the same level of seriousness and respect.	
	Log all complaints into a database	
Review and investigate grievances	Review and investigate grievances	MISE PMU
	Explain the process and the timeframe for the GRM process	
	Appoint an appropriate person to obtain information and investigate.	
Develop resolution options, response to grievances and closeout	Develop a proposed resolution process, involving communities where appropriate	MISE PMU
	Implement the agreed solution	MISE PMU and Receiving Authority
	Follow-up with complainant to ensure satisfaction	
	If unsatisfied: Discuss further options. Identify local partners who might be able to assist in finding solutions	

	If still unresolved, refer matter to third-party mediation or external review.	
Monitor and Evaluate	Regularly monitor the number and type of grievances received, resolved and outstanding	MISE, SPREP
	Evaluate trends over time and stages of project development	
	Report all grievances to the SPREP via relevant periodic reporting	MISE

D. Monitoring and evaluation arrangements

Monitoring and Evaluation Approach

During the planning phase of this proposal, it was ascertained that national government, outer island councils and outer island communities consider recent water and sanitation projects focusing on outer islands in Kiribati, have had limited success. Reasons cited by stakeholders include poor consultation and engagement; poor planning resulting in delayed implementation; lack of understanding of the uniqueness of each island’s water social characteristics and resource challenges; unreasonable demands on community members and; lack of capacity-building within communities. It is suspected a further contributory factor was insufficient feedback from monitoring processes for guiding implementation in a complex context.

Complexity is a key descriptor for the challenge of implementing equitable and sustainable water and sanitation solutions and their effective management in Kiribati’s outer islands. Complexity occurs when diverse elements interact with each other in unanticipated ways to create a new reality. The complex aspects of a situation cannot be known or predicted ahead of time, and cause-effect relationships are perceivable only retrospectively.⁶⁵ Complex situations respond well to: (1) adaptive management approaches, in which development practitioners experiment, gather information, and then act accordingly; and to (2) influence-oriented rather than control-oriented strategies. Box 1 makes the case for an M&E approach that matches the complex context of the Kiribati outer island water and sanitation project.

Box 1. The Case for Complexity-Aware Monitoring in the Kiribati Water Security Project

Performance monitoring has become the “go to” approach for M&E in donor-funded projects and programs, often without examining how well it fits the context of a particular intervention. Performance monitoring involves pre-defining the results that will constitute success collecting baseline data, identifying indicators, setting targets, and comparing actual indicator values to targets. Performance monitoring is organised primarily around answering questions about the progress of interventions towards desired results according to predetermined implementation plans. Consequently, monitoring systems tend to focus primarily on intended outcomes, on the intervention as the dominant factor causing change, and on the causal pathways as outlined in results frameworks. This emphasis means that performance monitoring is virtually blind to unintended (positive and negative) of outcomes associated with the intervention or system (intended, unintended, positive or negative), 2) alternative causes and contributions from other actors and factors. This narrow focus makes sense for monitoring the obvious aspects

⁶⁵ Complex problems contrast with those that are complicated. For example, sending a rocket to the moon is complicated because of the scale of the problem and the high requirements for coordination and specialized expertise. However, rockets are similar to each other, and because of this, following one success there can be a relatively high degree of certainty of outcome repetition. In contrast, complex problems are influenced by relationships, self-organisation, interconnection and evolution. A metaphor often used for complex problems is that they are like raising a child. Formulas have limited application. Raising one child provides experience but no assurance of success with the next. While expertise can contribute, it is neither necessary nor sufficient to ensure success. Each child is unique and must be understood and treated as an individual. A number of interventions can be expected to fail as a matter of course and uncertainty of the outcome remains. The most useful solutions usually emerge from discussions within the wider family and involve values.

(Sources: <https://www.alnap.org/system/files/content/resource/files/main/complicatedandcomplexsystems-zimmermanreport-medicare-reform.pdf>; <https://www.usaid.gov/sites/default/files/documents/1865/201sad.pdf>)

of strategies and projects; however, ignoring unintended results, alternative causes, and multiple pathways of contribution is risky for complex and complicated aspects of projects and their contexts.

Fortunately, “monitoring” includes an array of evaluative practices that do not focus exclusively on pre-defined results, baselines, indicators, and targets. *Complexity-aware* monitoring (also referred to as real time evaluation or evaluative monitoring) involves using methods that can track a fuller range of outcomes, contribution pathways and factors influencing the emergence of outcomes in real time while a program is being implemented.

Complexity-aware monitoring is appropriate for projects/programs (or aspects of them) when:

- cause and effect relationships are difficult to establish, (partly because many factors and other programs are active and beyond the control of the program in question) making it difficult to identify solutions and draft fixed, implementation plans in advance.
- expected results may require refinement and revision as the initiative unfolds.
- adaptive management is required to steer effectively in dynamic contexts
- the aim is to influence social or institutional change
- the purpose is innovation & experimentation for discovery of solutions
- its purpose is to inform ongoing innovative development of a program or intervention in response to changing conditions and/or new understandings
- its purpose is to adapt effective principles validated in one context to a different context
- its purpose is to support major systems change
- a new, original approach as it is being created

Most of these criteria apply to the Kiribati outer island water security project.

Given the complex nature of the challenge addressed by the project and the high financial and time requirements of M&E in Kiribati’s remote and dispersed outer islands, an appropriate balance needs to be found among different options for M&E. A common M&E model combines collection of data against indicators with mid-term and end-of-program evaluations. This model invests heavily in evaluation over monitoring (small M / large E). Its weakness is twofold:

- Limiting monitoring activities mainly to the collection of data on indicators provides little explanatory information about problems and challenges that may arise during implementation. Furthermore, with the strong focus on practice change reflected in the intermediate and end-of-program outcomes (Figure 8) the tracking of progress towards these will involve the use of qualitative measures.
- Similarly, because one-off mid-term reviews are often wide in breadth but shallow in depth, limiting evaluation during implementation to a single review at mid-term may not provide enough depth of understanding about particular implementation issues, or it may deliver the information too late. To be fit for purpose for this project, the M&E, should be able to provide the Executing Agency / Project Coordination Unit, the Government of Kiribati and outer island decision-makers with sufficient real time feedback to guide implementation.

In addition to the situation analysis or baseline study to be conducted during the scoping phase, the M&E approach proposed for this project prioritises monitoring over evaluation (large M / small E). Monitoring will consist of tracking progress against the activities and outputs (the workplan), and against outcomes, complemented by real-time evaluative studies. The real-time studies are the equivalent to a mid-term review, and as such will eliminate the need for a mid-term review. A focused evaluation carried out early in the last year of the project will compare outcomes against the situation at the beginning of the project, assess readiness for scaling up and bring together lessons to inform the scale up from 3 to 11 outer islands.

The real time evaluative monitoring studies will consist of appropriately scaled, highly focused, question-driven investigations to be designed and implemented where and when they are needed. Their purpose will be to discover whether activities are leading to positive and intended results;

and if not, to learn why; and to help identify potential course corrections for the adaptive management of the project by the Executing Agency and the PMU.

The priority information needs of the project correspond to three functions: performance management, adaptive management and preparing for scale up. Table 7 summarises the purpose and overarching questions associated with each of these functions.

Table 7. Purpose of and overarching questions for key project functions

	Function		
	Performance Management	Adaptive Management	Preparing for Scale-Up
Purpose	<ul style="list-style-type: none"> Track progress against workplans (activities and outputs) Track progress against expected outcomes Manage risk Ensure safeguards compliance Track gender and social inclusion 	<ul style="list-style-type: none"> Establish the baseline Identify emerging outcomes and inform decision-making during project implementation 	<ul style="list-style-type: none"> Document intended and unintended outcomes Document lessons Assess cost-effectiveness Assess readiness for scale-up
Overarching Questions	<ul style="list-style-type: none"> What outputs are resulting? How is the project tracking against the annual workplan? How is the project tracking against the results framework? What outcomes are emerging? Is the project compliant with the ESMP? How well is the project adhering to the Gender Action Plan? How effective is technical assistance and other support? Are there any emerging risks that warrant attention? Are risks being managed effectively? 	<ul style="list-style-type: none"> What is the baseline situation on each island? What contextual changes and factors are emerging and how are these enabling and constraining the achievement of outcomes? What is going well, less well and why? What changes need to be made to improve implementation and ensure positive outcomes? 	<ul style="list-style-type: none"> What outcomes (expected/unexpected) emerged from the activities supported by the project? How cost-effective is the project? What has been learned that can inform scaling up? Is the project ready for scale-up?

Table 8 provides an overview of how information needs will vary over the different phases of the project, and how different M&E tools will be deployed to meet them. Information for performance management will be required over all phases of the project. During the scoping phase, the focus of M&E for adaptive management will be on baseline/situation analysis. Real time studies to guide project decisions will be carried out during platform development and the implementation of interventions. M&E activity will peak during the implementation of interventions. During this phase

M&E activities will be focused on all three functions: performance management, adaptive management and preparation for scaling-up.

Table 8. Overview of Monitoring and Evaluation

Information Need	Purpose	M&E Tool	Project Phase		
			Scoping	Platform Development	Implementation of Interventions
Performance Management	<ul style="list-style-type: none"> Track progress Track safeguards compliance Track gender and social inclusion Manage risk 	Monitoring	✓	✓	✓
			✓	✓	✓
Adaptive Management	<ul style="list-style-type: none"> Establish baseline Guide implementation 	<ul style="list-style-type: none"> Baseline/situation analysis Real-time evaluative studies 	✓		
				✓	✓
Preparing for Scale-Up	<ul style="list-style-type: none"> Document outcomes and lessons Analysis of cost-effectiveness Assess readiness for scale-up 	End-of-program studies			✓
					✓

Annex I provides a menu of more specific guiding questions for baseline and real time analyses for adaptive management and for the end-of-program studies to prepare for scaling-up. The PMU and Executing Agency will have the flexibility to review and adjust the guiding questions for situation/baseline analysis and for real-time evaluative studies as the scoping phase unfolds and as the evidence-base platform is developed. Likewise, the PMU and Executing Agency will have the flexibility to refine the questions for the end-of-program studies. They will choose suitable modalities for undertaking M&E studies based on these questions. Key dimensions to be considered in choosing a modality include: the degree of independence required; the degree of local knowledge required; pros and cons of designing and/or conducting a study using in-house expertise compared to commissioning studies externally.

A variety of methods may be used for baseline/situation analysis, monitoring, real time evaluative studies and end-of-program studies. Some of the guiding questions may be addressed through rapid assessments using methods such as regular reflection/stock-taking sessions, after action reviews, monitoring visits, and feedback gathering from participants in consultations and training events. Others may require audits (e.g. ESS), small-scale surveys, case studies and the use of qualitative research techniques involving stakeholder group and/or individuals. A guide to some potential methods is available from the Implementing Agency.

M&E Roles and Responsibilities

Roles and responsibilities for M&E will be shared by the Implementing Agency, the Executing Agency and PMU, delivery partners (national, regional, and international), and Island Councils as described in Table 9.

Table 9. M&E roles and responsibilities

Stakeholder	Roles and Responsibilities
Implementing Agency	<ul style="list-style-type: none"> • Provide high level oversight, guidance and M&E expertise as required. • Ensure M&E is embedded in project operations
Project Management Unit and Executing Agency	<ul style="list-style-type: none"> • Lead and manage M&E activities and project reporting • Develop detailed results framework and M&E Implementation Plan during the scoping phase • Design and carry out or commission the baseline/situation analysis • Ensure responsibilities and timing for collection of monitoring data is clear • Design reporting templates and tools and provide guidance on their use • Ensure collection of monitoring data is integrated into project activities • Coordinate gathering of information from monitoring visits • Manage and analyse project M&E data as required • Carry out or commission and manage real time studies as required • Use M&E data and information to guide project implementation, including through the convening of regular reflection sessions with the IA, DPs and other stakeholders as appropriate • Commission and manage an end-of-program evaluation, including an analysis of socioeconomic benefit • Manage dissemination of M&E data and reporting to stakeholders
Implementation / Delivery Partners	<ul style="list-style-type: none"> • Provide regular reports and data as required by the M&E Implementation Plan
Island Councils	<ul style="list-style-type: none"> • Provide access to data and information as required • Facilitate M&E at the Island level by arranging access and authorising activities

The M&E Officer appointed to the PMU staff will need a range of skills and experience to design and commission studies, collect, manage and analyse data, especially qualitative data, and for supporting the PMU team leader and communications officer in reporting and communication. The M&E Officer will be supported by an M&E Advisor (to be contracted on retainer). This will be particularly important in transitioning the project from the plan into the implementation phase and therefore the development of the detailed results framework and M&E Implementation Plan. The Advisor role will provide advice, guidance and training to all project personnel on the monitoring and evaluation aspects of the project.

Lastly, Kiribati’s recent policy of mandatory retirement for government employees at age 55⁶⁶, has created is a cohort of experienced people, many of whom are available to provide support to projects on a short-term basis. Some have research experience and could provide a pool of expertise for carrying out or supporting situation/baseline analyses, real-time evaluative studies and end-of-program studies.

M&E Budget

The M&E budget for the Project is outlined below:

Description	US\$
M&E Staff	
M&E Officer	\$134,200
M&E Advisor* (Consultant)	\$67,000
Evaluations	
Mid-term review* (tbd)	\$20,000
Final evaluation	\$50,000
Real-time studies^	\$150,000
Monitoring & Evaluation	
Monitoring & Evaluation Officer	\$134,200
Final evaluation	\$50,000
Total	\$605,400

Note: In addition to the above budget, the project aims to have all activities undertaking real-time monitoring and evaluation. These costs are incorporated into the activity budgets.

* denotes under IA fee budget

^ the real-time studies are to undertake focused studies across the project however, they will have an M&E focus as well

E. Project Results Framework

The project results framework (Figure 7) consists of four end-of-program outcomes, six intermediate outcomes and 20 outputs. The outputs will be developed through sets of activities grouped into five inter-linked components as illustrated in Figure 9 and described in Section A above. The relationships between activities, outputs and outcomes are not linear; multiple activities and components will contribute to the emergence of outcomes. As indicated in Figure 11, training and capacity building activities and Gender and Social Inclusion approaches are embedded in all components.

All the intended outcomes are behaviour changes: changes in relationships, changes in decision-making, changes in how evidence is used, and changes in practices around the use of water resources and water and sanitation facilities. During the inception stage, each outcome statement in the results framework (Annex J) will be unpacked to describe the desired changes sought by the project in greater detail. For example end-of-project Outcome (EOPO) 4 states that village-led, culturally appropriate sanitation facilities will be in use in targeted sites. Unpacking this particular outcome will involve asking the question, “if there project were extremely successful,

⁶⁶ Retirement age was dropped to 50 under President Tong and has been raised recently to 55 under President Maamau (Source: MFED).

who will be doing what differently” and adding more clarity about the desired changes in use and about gender and social inclusion aspects.

In lieu of quantitative indicators for each outcome progress markers will be identified. Progress markers⁶⁷ are a set of statements describing a gradual progression of changed behaviour in the key actors, leading to the outcome statement. Their strength lies in providing a way to articulate the complexity of the change process. They represent the information to can be gathered in order to monitor achievements. Like indicators, progress markers are observable and measurable, but do not describe changes in state, nor contain percentages or deadlines. Progress markers can be adjusted during the implementation process as more is understood about the change process.

A more detailed results framework is provided in Annex J below. Further detail will be added during the scoping phase, including the identification of progress markers for each outcome and targets for output indicators, as appropriate.

M&E Implementation Plan and Reporting

The development of the detailed, annual M&E Implementation plan will be the responsibility of the M&E Manager, with the initial plan developed during the scoping phase. The plan will identify the monitoring activities to be conducted each year, including those to be integrated into other program activities, those to be carried out through specific monitoring visits and those requiring real time evaluative studies. The plan will also identify responsibilities for carrying out the responsibilities and the resources required.

The M&E implementation plan and reports for the project should be structured around the key information needs. An indicative reporting format is provided in Annex K.

F. Alignment of the Project with the AF Results Framework

Project Objective(s) ⁶⁸	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
People in targeted villages in outer islands have equitable access to water facilities	Number / % of direct and indirect beneficiaries supported through adaptation measures (disaggregated by gender) Number of assets (drinking water systems) produced or strengthened in the target areas	Outcome 4: Increased adaptive capacity within relevant development and natural resource sectors Outcome 5: Increased ecosystem resilience in response to climate change and variability induced stress	4. 2. Physical infrastructure improved to withstand climate change and variability-induced stress 5.Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	\$8,397,235 ⁶⁹

⁶⁷ Progress markers are a core element of Outcome Mapping, a complexity-aware method briefly described in Annex F.

⁶⁸ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology, but the overall principle should still apply

⁶⁹ The project is not designed to be linear, rather project activities are all connected and integrated to achieve the project objectives. As part of this, community consultations, training, maintenance etc are all integrated across the activities.

People in the targeted villages in the outer islands are using the facilities and trained in the maintenance of the facilities	Number / % of targeted population applying appropriate adaptation responses (disaggregated by gender)	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socio-economic and environmental losses Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	2.1 No and type of targeted institutions with increased capacity to minimise exposure to climate variability risks 3.2. Modification in behaviour of targeted population	
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Outcome 1: Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate	No of tools and models developed to guide the decision-making process for water harvesting and supply options	Output 5: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability	5.1: No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change	\$3,748,680
Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence	No of water supply and harvesting facilities implemented using evidence-base	Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities Output 4: Vulnerable physical, natural and social assets strengthened in response to climate change	2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased 3.1.2 No. of news outlets in the local press and media that have covered the topic 4.1.2 Number of physical assets strengthened, constructed or moved to withstand conditions resulting from climate variability and	\$2,846,185

		impacts, including variability	change (by asset types)	
Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water	No of outer islands implementing Drought Response Plans, Water Safety Plans and Asset Management Plans	Output 2.1: Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	\$1,420,475
Outcome 4: Village-led culturally appropriate sanitation facilities are in use in targeted sites	WASH Programme implemented in target outer islands	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.2 No. of news outlets in the local press and media that have covered the topic	\$381,895

G. Project Budget

COMPONENT	OUTPUT	OUTCOME	Year 1 (USD)	Year 2 (USD)	Year 3 (USD)	Year 4 (USD)	Year 5 (USD)	Total Budget (per output)	Total Budget (per outcome)
Component 1: Establishing the evidence-base for water and sanitation interventions at the island and village level	1.1. Sea level rise and coastal hazard assessments developed to inform impacts on groundwater supply, infrastructure design and planning	Outcome 1: Government of Kiribati and local communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate	255,880.00	209,040.00	197,870.00	147,235.00		810,025.00	3,748,680.00
	1.2. Assessment of climate change impacts on future water security		156,670.00	230,725.00	211,455.00	152,080.00		750,930.00	
	1.3. Hydrological measurement, monitoring and risk assessment developed for outer islands		331,710.00	247,830.00	194,375.00	97,925.00		871,840.00	
	1.4. Coordinated and low-cost water quality monitoring system implemented in the outer islands		140,035.00	186,290.00	110,350.00	6,950.00		443,625.00	
	1.5. Collation of the evidence and analysis of the options		137,315.00	139,990.00	143,310.00	29,965.00		450,580.00	
	1.6. Strengthened weather and climate services		384,385.00	12,765.00	12,765.00	11,765.00		421,680.00	
Total Outcome Budget			1,405,995.00	1,026,640.00	870,125.00	445,920.00		3,748,680.00	3,748,680.00
Component 2: Water harvesting and supply systems in the outer islands	2.1. Assessment of current water and sanitation infrastructure	Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence	333,410.00	254,675.00	33,275.00	33,275.00	16,680.00	671,315.00	1,892,550.00
	2.2. Early water safety interventions e.g. covering of wells and installation of pumps in identified villages under the assessment		-	3,675.00	516,215.00	368,395.00		888,285.00	
	2.3. Selected villages have water harvesting and supply facilities installed in line with climate change projections		55,210.00	83,635.00	84,460.00	109,645.00	-	332,950.00	
	2.4. Socio-economic benefit analysis								
Total Outcome Budget			388,620.00	341,985.00	633,950.00	511,315.00	16,680.00	1,892,550.00	1,892,550.00
Component 3: Piloting sanitation approaches in the outer islands	3.1. Analysis of factors influencing behaviour, attitude, constraints and incentives towards sanitation in the outer islands	Outcome 4: Village-led, culturally appropriate sanitation facilities are in use in the targeted sites	-	45,580.00	-	-		45,580.00	381,895.00
	3.2. Village designed sanitation options developed		-	75,105.00	68,355.00	27,015.00		170,475.00	
	3.3. WASH programme delivered across all community groups in the outer island		41,800.00	41,800.00	41,800.00	40,440.00		165,840.00	
Total Outcome Budget			41,800.00	162,485.00	110,155.00	67,455.00	-	381,895.00	381,895.00
Component 4: Coordinated planning for water resource management at Government, Island and Village level	4.1. Coordinated water and sanitation decision-making model for Government of Kiribati and outer islands	Outcome 2: Joint decision-making between Government of Kiribati and Island Councils to determine water facilities based on evidence	226,000.00	316,665.00	380,120.00	30,850.00		953,635.00	953,635.00
Total Outcome Budget			226,000.00	316,665.00	380,120.00	30,850.00	-	953,635.00	953,635.00
Component 4: Coordinated planning for water resource management at Government, Island and Village level	4.2. Drought response plans developed and implemented	Outcome 3: Practices of the Government of Kiribati and outer island communities are consistent with the protection and sustainable and equitable use of water	-	73,735.00	73,735.00	16,435.00		163,905.00	458,765.00
	4.3. Water safety plans developed and implemented		-	73,735.00	73,735.00	16,435.00		163,905.00	
	4.4. Asset management plans developed and implemented		-	58,585.00	58,585.00	13,785.00		130,955.00	
Component 5: Facilitating the sustainability of project outcomes into the outer islands and at the national level	5.1. Gender and social inclusion embedded across activities and within outer island consultations and trainings		40,505.00	27,985.00	27,985.00	27,985.00	-	124,460.00	961,710.00
	5.2. Knowledge products developed and utilised by targeted stakeholders		152,660.00	141,210.00	151,835.00	182,235.00	15,000.00	642,940.00	
	5.3. Centralised and coordinated data management		93,650.00	39,330.00	34,330.00	27,000.00		194,310.00	
Total Outcome Budget			286,815.00	414,580.00	420,205.00	283,875.00	15,000.00	1,420,475.00	1,420,475.00
TOTAL PROJECT ACTIVITY BUDGET			2,349,230.00	2,262,355.00	2,414,555.00	1,339,415.00	31,680.00	8,397,235.00	8,397,235.00
Project Management			170,550.00	162,550.00	164,550.00	161,550.00	136,800.00	796,000.00	796,000.00
TOTAL PROJECT MANAGEMENT BUDGET			170,550.00	162,550.00	164,550.00	161,550.00	136,800.00	796,000.00	796,000.00
IA Fee			311,500.00	142,500.00	145,000.00	162,420.00	-	761,420.00	761,420.00
TOTAL PROJECT BUDGET			2,831,280.00	2,567,405.00	2,724,105.00	1,683,385.00	168,480.00	9,974,655.00	9,974,655.00

Component 1: Establishing the evidence-base for water and sanitation interventions at the island and village level

OUTPUT	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR					TOTAL BY CATEGORY	TOTAL ACTIVITY BUDGET
			Year 1	Year 2	Year 3	Year 4	USD		
			USD	USD	USD	USD	USD		
1.1. Sea level rise and coastal hazard assessments developed to inform impacts on groundwater supply, infrastructure design and planning	Activity 1.1. Sea level rise, inundation and erosion hazard assessment and island/reef morphology data collection	Staff - Salary	101,655.00	162,770.00	167,340.00	121,960.00	553,725.00	810,025.00	
		Travel	12,945.00	21,170.00	21,170.00	16,445.00	71,730.00		
		Field costs (transport, fuel etc)	680.00	1,000.00	1,000.00	680.00	3,360.00		
		Equipment (Ocean Buoys)	58,800.00	-	-	-	58,800.00		
		Geo Physical Data	54,500.00	-	-	-	54,500.00		
		Transportation & Logistics	3,400.00	-	-	-	3,400.00		
		Workshops / Meetings / Forums	800.00	800.00	800.00	800.00	3,200.00		
		Training	15,000.00	15,000.00	-	-	30,000.00		
		Community Consultations	1,700.00	1,700.00	800.00	400.00	4,600.00		
		Other	6,400.00	6,600.00	6,760.00	6,950.00	26,710.00		
SUB-TOTAL			255,880.00	209,040.00	197,870.00	147,235.00	810,025.00	810,025.00	
1.2. Assessment of climate change impacts on future water security	Activity 1.2. Climate change and impacts assessments	Staff - Salary	109,170.00	178,445.00	159,795.00	133,855.00	581,265.00	750,930.00	
		Consultant - Local	28,595.00	28,595.00	28,595.00	-	85,785.00		
		Travel	8,595.00	12,870.00	12,905.00	8,595.00	42,965.00		
		Field costs (transport, fuel etc)	680.00	1,000.00	1,000.00	680.00	3,360.00		
		Workshops / Meetings / Forums	800.00	800.00	800.00	800.00	3,200.00		
		Training	800.00	800.00	800.00	800.00	3,200.00		
		Community Consultations	1,635.00	1,635.00	800.00	400.00	4,470.00		
		Other	6,395.00	6,580.00	6,760.00	6,950.00	26,685.00		
SUB-TOTAL			156,670.00	230,725.00	211,455.00	152,080.00	750,930.00	750,930.00	
1.3. Hydrological measurement, monitoring and risk assessment developed for outer islands	Activity 1.3. Implementing a hydrological measurement, monitoring and risk assessment modelling program for the island	Staff - Salary	114,930.00	209,415.00	156,605.00	80,515.00	561,465.00	871,840.00	
		Travel	11,760.00	23,210.00	23,210.00	7,460.00	65,640.00		
		Equipment (Groundwater)	183,830.00	-	-	-	183,830.00		
		Transportation & Logistics	3,400.00	-	-	-	3,400.00		
		Field costs (transport, fuel etc)	1,360.00	2,000.00	2,000.00	1,000.00	6,360.00		
		Consumables	6,800.00	3,400.00	3,400.00	-	13,600.00		
		Workshops / Meetings / Forums	800.00	800.00	800.00	800.00	3,200.00		
		Training	800.00	800.00	800.00	800.00	3,200.00		
		Community Consultations	1,635.00	1,635.00	800.00	400.00	4,470.00		
		Other	6,395.00	6,570.00	6,760.00	6,950.00	26,675.00		
SUB-TOTAL			331,710.00	247,830.00	194,375.00	97,925.00	871,840.00	871,840.00	
1.4. Coordinated and low cost water quality monitoring system implemented in the outer islands	Activity 1.4. Implementing a coordinated water quality monitoring framework	Staff - Salary	74,335.00	76,430.00	78,590.00	-	229,355.00	443,625.00	
		Travel	11,920.00	18,520.00	18,520.00	-	48,960.00		
		Field costs (transport, fuel etc)	680.00	680.00	680.00	-	2,040.00		
		Equipment	34,100.00	-	-	-	34,100.00		
		Consumables	6,800.00	3,400.00	3,400.00	-	13,600.00		
		Transportation & Logistics	3,400.00	3,400.00	-	-	6,800.00		
		Workshops / Meetings / Forums	800.00	800.00	800.00	-	2,400.00		
		Training	800.00	800.00	800.00	-	2,400.00		
		Community Consultations	800.00	800.00	800.00	-	2,400.00		
		Database	-	54,465.00	-	-	54,465.00		
		Training Manuals / Information	-	20,425.00	-	-	20,425.00		
Other	6,400.00	6,570.00	6,760.00	6,950.00	26,680.00				
SUB-TOTAL			140,035.00	186,290.00	110,350.00	6,950.00	443,625.00	443,625.00	

Component 1: Establishing the evidence-base for water and sanitation interventions at the island and village level

OUTPUT	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR					TOTAL BY CATEGORY	TOTAL ACTIVITY BUDGET	
			Year 1	Year 2	Year 3	Year 4	USD			USD
			USD	USD	USD	USD	USD			USD
1.5. Collation of the evidence and analysis of options	Activity 1.5. Collating evidence and analysing options for water management	Staff - Salary	102,170.00	126,065.00	129,625.00	22,215.00	380,075.00	450,580.00		
		Travel	3,725.00	5,725.00	5,725.00	-	15,175.00			
		Equipment	20,425.00	-	-	-	20,425.00			
		Transportation & Logistics	3,400.00	-	-	-	3,400.00			
		Workshops / Meetings / Forums	400.00	400.00	400.00	800.00	2,000.00			
		Community Consultations	800.00	1,225.00	800.00	-	2,825.00			
		Other	6,395.00	6,575.00	6,760.00	6,950.00	26,680.00			
SUB-TOTAL			137,315.00	139,990.00	143,310.00	29,965.00	450,580.00	450,580.00		
1.6. Strengthened weather and climate services	Activity 1.6. Weather and climate services to strengthen climatic conditions information	Travel	10,540.00	10,540.00	10,540.00	10,540.00	42,160.00	421,680.00		
		Equipment (Telemetry)	68,085.00	-	-	-	68,085.00			
		Software	200,560.00	-	-	-	200,560.00			
		Transportation & Logistics	3,400.00	-	-	-	3,400.00			
		Training	1,000.00	1,000.00	1,000.00	-	3,000.00			
		Community Consultations	800.00	1,225.00	1,225.00	1,225.00	4,475.00			
		Other	100,000.00	-	-	-	100,000.00			
SUB-TOTAL			384,385.00	12,765.00	12,765.00	11,765.00	421,680.00	421,680.00		
COMPONENT TOTAL			1,405,995.00	1,026,640.00	870,125.00	445,920.00	3,748,680.00	3,748,680.00		

Component 2: Water harvesting and supply systems in the outer islands									
OUTPUT	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR					TOTAL BY CATEGORY	TOTAL ACTIVITY BUDGET
			Year 1	Year 2	Year 3	Year 4	Year 5		
			USD	USD	USD	USD	USD	USD	USD
2.1. Assessment of current water and sanitation infrastructure 2.2. Early water safety interventions e.g. covering of wells and installation of pumps in identified villages under the assessment	Activity 2.1: Assessment of current water harvesting and supply systems and implementation of 'early win' interventions	Salary: Technical Coordinator	33,275.00	33,275.00	33,275.00	33,275.00	16,680.00	149,780.00	671,315.00
		Salary (Outer Island personnel)	30,635.00	30,635.00				61,270.00	
		Consultant - Local	12,255.00	6,120.00				18,375.00	
		Travel	72,600.00	-				72,600.00	
		Field costs (transport, fuel)	1,000.00	1,000.00				2,000.00	
		Equipment (water storage)	150,800.00	150,800.00				301,600.00	
		Workshops / Meetings / Forums	800.00	800.00				1,600.00	
		Government & Community Training	3,400.00	3,400.00				6,800.00	
		Community Consultations	3,675.00	3,675.00				7,350.00	
		Other	24,970.00	24,970.00				49,940.00	
SUB-TOTAL			333,410.00	254,675.00	33,275.00	33,275.00	16,680.00	671,315.00	671,315.00
2.3. Selected villages have water harvesting and supply facilities installed in line with climate change projections	Activity 2.2. Implementation of long-term options for water harvesting and supply systems in the target islands	Staff - Salary	-	-	136,170.00	136,170.00	-	272,340.00	888,285.00
		Travel	-	-	11,850.00	12,390.00	-	24,240.00	
		Equipment & Materials	-	-	136,170.00	170,210.00	-	306,380.00	
		Transportation & Logistics	-	-	138,890.00	42,550.00	-	181,440.00	
		Government & Community Training	-	-	3,400.00	3,400.00	-	6,800.00	
		Community Consultations	-	3,675.00	2,450.00	3,675.00	-	9,800.00	
		Training Manuals / Information	-	-	20,425.00	-	-	20,425.00	
		Other	-	-	66,860.00	-	-	66,860.00	
SUB-TOTAL			-	3,675.00	516,215.00	368,395.00	-	888,285.00	888,285.00
2.4. Socio-economic benefit analysis	Activity 2.3. Determining the sustainability of water and sanitation programmes in climate change adaptation	Staff - Salary	44,780.00	23,020.00	23,665.00	48,660.00	-	140,125.00	332,950.00
		Travel	3,235.00	3,235.00	3,235.00	3,235.00	-	12,940.00	
		Real time studies	-	50,000.00	50,000.00	50,000.00	-	150,000.00	
		Workshops / Meetings / Forums	800.00	800.00	800.00	800.00	-	3,200.00	
		Other	6,395.00	6,580.00	6,760.00	6,950.00	-	26,685.00	
SUB-TOTAL			55,210.00	83,635.00	84,460.00	109,645.00	-	332,950.00	332,950.00
COMPONENT TOTAL			388,620.00	341,985.00	633,950.00	511,315.00	16,680.00	1,892,550.00	1,892,550.00

Component 3: Piloting sanitation approaches in the outer islands

OUTPUT	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR					TOTAL BY CATEGORY	TOTAL ACTIVITY BUDGET
			Year 1	Year 2	Year 3	Year 4	USD		
			USD	USD	USD	USD	USD	USD	USD
3.1. Analysis of factors influencing behaviour, attitude, constraints and incentives towards sanitation in the outer islands	Activity 3.1. Undertake an analysis of cultural norms to identify barriers and constraints relating to sanitation options	Staff - Salary							45,580.00
		Consultant - International		30,000.00			30,000.00		
		Consultant - Local							
		Professional Services							
		Travel		10,000.00			10,000.00		
		Consumables		680.00			680.00		
		Community Consultations		4,900.00			4,900.00		
		Other							
SUB-TOTAL			-	45,580.00	-	-	45,580.00	45,580.00	
3.2. Village designed sanitation options developed	Activity 3.2. Identifying, testing and evaluating culturally appropriate sanitation approaches	Staff - Salary							170,475.00
		Consultant - International		20,000.00	20,000.00		40,000.00		
		Consultant - Local		15,000.00	15,000.00	15,000.00	45,000.00		
		Professional Services							
		Travel		13,000.00	13,060.00	6,000.00	32,060.00		
		Equipment		13,610.00	6,800.00	-	20,410.00		
		Transportation & Logistics		6,800.00	6,800.00	-	13,600.00		
		Office Supplies		-	-	-	-		
		Workshops / Trainings		1,360.00	1,360.00	680.00	3,400.00		
		Community training		1,635.00	1,635.00	1,635.00	4,905.00		
		Community Consultations		2,000.00	2,000.00	2,000.00	6,000.00		
		Communication tools / Information		1,700.00	1,700.00	1,700.00	5,100.00		
		Other		-	-	-	-		
SUB-TOTAL			-	75,105.00	68,355.00	27,015.00	170,475.00	170,475.00	
3.3. WASH programme delivered across all community groups in the outer islands	Activity 3.3. Implementing approaches aimed at inducing long-term changes to behaviours and practices in water, sanitation and hygiene	WASH	12,660.00	12,660.00	12,660.00	12,660.00	50,640.00	165,840.00	
		Travel	3,000.00	3,000.00	3,000.00	3,000.00	12,000.00		
		Equipment / Consumables	13,610.00	13,610.00	13,610.00	13,610.00	54,440.00		
		Transportation & Logistics	-	-	-	-	-		
		Office Supplies	4,000.00	4,000.00	4,000.00	4,000.00	16,000.00		
		Workshops / Meetings / Forums	2,000.00	2,000.00	2,000.00	2,000.00	8,000.00		
		Training (WASH training to partners)	1,360.00	1,360.00	1,360.00	-	4,080.00		
		Community Consultations / Training	2,450.00	2,450.00	2,450.00	2,450.00	9,800.00		
		Communication tools / Information	2,720.00	2,720.00	2,720.00	2,720.00	10,880.00		
Other	-	-	-	-	-				
SUB-TOTAL			41,800.00	41,800.00	41,800.00	40,440.00	165,840.00	165,840.00	
COMPONENT TOTAL			41,800.00	162,485.00	110,155.00	67,455.00	381,895.00	381,895.00	

Component 4: Coordinated planning for water resource management at Government, Island and Village level

OUTPUT	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR				TOTAL BY CATEGORY	TOTAL ACTIVITY BUDGET
			Year 1	Year 2	Year 3	Year 4		
			USD	USD	USD	USD	USD	USD
4.1. Coordinated water and sanitation decision making model for Government of Kiribati and outer islands	Activity 4.1: Baseline mapping of decision-making practices in previous projects	Staff - Salary	124,280.00	157,900.00	328,185.00	18,000.00	628,365.00	953,635.00
		Consultant - International	53,100.00	89,870.00	-	-	142,970.00	
		Travel	28,840.00	47,165.00	39,275.00	-	115,280.00	
		Materials & Translation	6,125.00	6,800.00	-	-	12,925.00	
		Consumables	3,400.00	-	-	-	3,400.00	
		Training	1,000.00	1,000.00	1,000.00	1,000.00	4,000.00	
		Community Consultations	2,860.00	7,350.00	4,900.00	4,900.00	20,010.00	
		Other	6,395.00	6,580.00	6,760.00	6,950.00	26,685.00	
SUB-TOTAL			226,000.00	316,665.00	380,120.00	30,850.00	953,635.00	953,635.00
4.2. Drought response plans developed and implemented	Activity 4.2: Developing Outer Island Drought Response Plans	Staff - Salary	-	-	-	-	-	163,905.00
		Consultant - International	-	42,500.00	42,500.00	-	85,000.00	
		Consultant - Local	-	-	-	-	-	
		Travel	-	24,520.00	24,520.00	10,400.00	59,440.00	
		Field costs (transport, fuel etc)	-	1,000.00	1,000.00	1,000.00	3,000.00	
		Consumables	-	680.00	680.00	680.00	2,040.00	
		Office Supplies	-	-	-	-	-	
		Workshops / Meetings / Forums	-	1,360.00	1,360.00	680.00	3,400.00	
		Community Training	-	2,450.00	2,450.00	2,450.00	7,350.00	
		Community Consultations	-	1,225.00	1,225.00	1,225.00	3,675.00	
Other	-	-	-	-	-			
SUB-TOTAL			-	73,735.00	73,735.00	16,435.00	163,905.00	163,905.00
4.3. Water safety plans developed and implemented	Activity 4.3: Developing Outer Island Water Safety Plans	Staff - Salary	-	-	-	-	-	163,905.00
		Consultant - International	-	42,500.00	42,500.00	-	85,000.00	
		Consultant - Local	-	-	-	-	-	
		Travel	-	24,520.00	24,520.00	10,400.00	59,440.00	
		Field costs (transport, fuel etc)	-	1,000.00	1,000.00	1,000.00	3,000.00	
		Consumables	-	680.00	680.00	680.00	2,040.00	
		Office Supplies	-	-	-	-	-	
		Workshops / Meetings / Forums	-	1,360.00	1,360.00	680.00	3,400.00	
		Community Training	-	2,450.00	2,450.00	2,450.00	7,350.00	
		Community Consultations	-	1,225.00	1,225.00	1,225.00	3,675.00	
Other	-	-	-	-	-			
SUB-TOTAL			-	73,735.00	73,735.00	16,435.00	163,905.00	163,905.00
4.4. Asset management plans developed and implemented	Activity 4.4: Developing outer island Asset Management Plans	Staff - Salary	-	-	-	-	-	130,955.00
		Consultant - International	-	30,000.00	30,000.00	-	60,000.00	
		Consultant - Local	-	-	-	-	-	
		Travel	-	21,870.00	21,870.00	7,750.00	51,490.00	
		Field costs (transport, fuel etc)	-	1,000.00	1,000.00	1,000.00	3,000.00	
		Consumables	-	680.00	680.00	680.00	2,040.00	
		Office Supplies	-	-	-	-	-	
		Workshops / Meetings / Forums	-	1,360.00	1,360.00	680.00	3,400.00	
		Community Training	-	2,450.00	2,450.00	2,450.00	7,350.00	
		Community Consultations	-	1,225.00	1,225.00	1,225.00	3,675.00	
Other	-	-	-	-	-			
SUB-TOTAL			-	58,585.00	58,585.00	13,785.00	130,955.00	130,955.00
COMPONENT TOTAL			226,000.00	522,720.00	586,175.00	77,505.00	1,412,400.00	1,412,400.00

Component 5: Facilitating the sustainability of project outcomes into the outer islands and at the national level

OUTCOME	ACTIVITY	BUDGET CATEGORY	BUDGET BY YEAR					TOTAL BUDGET	TOTAL ACTIVITY BUDGET
			Year 1	Year 2	Year 3	Year 4	Year 5		
			USD	USD	USD	USD	USD	USD	USD
5.1. Gender and social inclusion embedded across activities and within outer island consultations and trainings	Output 5.1. Gender and social inclusion embedded across activities and within outer island consultations and trainings	Gender Specialist	27,000.00	18,000.00	18,000.00	18,000.00	-	81,000.00	124,460.00
		Travel	8,420.00	8,420.00	8,420.00	8,420.00	-	33,680.00	
		Equipment	2,500.00	-	-	-	-	2,500.00	
		Workshops / Training	1,360.00	340.00	340.00	340.00	-	2,380.00	
		Community Consultations	1,225.00	1,225.00	1,225.00	1,225.00	-	4,900.00	
		Other	-	-	-	-	-	-	
		SUB-TOTAL	40,505.00	27,985.00	27,985.00	27,985.00	-	124,460.00	
		KM Specialist	29,750.00	30,000.00	30,000.00	30,000.00	15,000.00	134,750.00	642,940.00
		Existing networks	12,255.00	13,275.00	13,900.00	14,300.00	-	53,730.00	
		Consultant - Local	9,000.00	-	-	-	-	9,000.00	
		Travel	10,155.00	8,420.00	8,420.00	8,420.00	-	35,415.00	
		Equipment	2,500.00	-	-	-	-	2,500.00	
		Office Supplies / Consumables	1,360.00	1,360.00	1,360.00	1,360.00	-	5,440.00	
		Workshops / Training (Tarawa)	1,360.00	680.00	680.00	680.00	-	3,400.00	
		Training (Outer Islands)	1,225.00	1,225.00	1,225.00	1,225.00	-	4,900.00	
		Community Consultations	1,225.00	2,450.00	2,450.00	2,450.00	-	8,575.00	
		Guides & Plans, tools, products, publications	60,000.00	60,000.00	70,000.00	100,000.00	-	290,000.00	
		Annual Forums	23,830.00	23,800.00	23,800.00	23,800.00	-	95,230.00	
		SUB-TOTAL	152,660.00	141,210.00	151,835.00	182,235.00	15,000.00	642,940.00	
5.3. Centralised and coordinated data management	Activity 5.3. Establishing effective data management mechanisms	Consultant - International	30,000.00	5,000.00	-	-	-	35,000.00	194,310.00
		Consultant - Local	27,000.00	27,000.00	27,000.00	27,000.00	-	108,000.00	
		Travel	5,970.00	5,970.00	5,970.00	-	-	17,910.00	
		Data Portal / Database	30,000.00	-	-	-	-	30,000.00	
		Workshops / Trainings	680.00	1,360.00	1,360.00	-	-	3,400.00	
		Other	-	-	-	-	-	-	
SUB-TOTAL	93,650.00	39,330.00	34,330.00	27,000.00	-	194,310.00	194,310.00		
COMPONENT TOTAL			286,815.00	208,525.00	214,150.00	237,220.00	15,000.00	961,710.00	

Project Management Budget

Detailed Budget (in US\$)							
Budget Categories	Year 1	Year 2	Year 3	Year 4	Year 5 (6 mths)	Total Budget (per category)	Total Budget (per sub-outcome)
	USD	USD	USD	USD	USD	USD	USD
Project Staff: Project Manager	39,150.00	39,150.00	39,150.00	39,150.00	20,000.00	176,600.00	594,000.00
Project Staff: Finance Manager	29,800.00	29,800.00	29,800.00	29,800.00	29,800.00	149,000.00	
Project Staff: Project Officer	29,800.00	29,800.00	29,800.00	29,800.00	15,000.00	134,200.00	
Project Staff: M&E Officer	29,800.00	29,800.00	29,800.00	29,800.00	15,000.00	134,200.00	
Sub-Total (Salaries)	128,550.00	128,550.00	128,550.00	128,550.00	79,800.00	594,000.00	594,000.00
Travel	9,000.00	9,000.00	9,000.00	9,000.00	3,000.00	39,000.00	202,000.00
Monitoring and Evaluation	-	-	-	-	50,000.00	50,000.00	
Equipment / Office Supplies	15,000.00	8,000.00	8,000.00	5,000.00	-	36,000.00	
Audit	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00	20,000.00	
Workshops / Forums	4,000.00	3,000.00	3,000.00	-	-	10,000.00	
Project Steering Committee	10,000.00	10,000.00	12,000.00	15,000.00	-	47,000.00	
Sub-Total (Admin Expenses)	42,000.00	34,000.00	36,000.00	33,000.00	57,000.00	202,000.00	202,000.00
	170,550.00	162,550.00	164,550.00	161,550.00	136,800.00	796,000.00	796,000.00

Implementing Agency Budget

	Description	USD
1	Project development	
	Developing proposal: Staff costs, travel, field costs, consultations	\$40,000
2	Implementation and Supervision	
	Project implementation oversight, planning workshops, inception workshop: Staff costs, technical advice, travel, field costs	\$110,000
	Technical consultants: ESS Advisor, M&E Advisor, technical advice as required	\$167,000
	Financial oversight, Audits	\$65,920
	Monitoring, evaluation and reporting	\$40,000
3	Completion and Evaluation	
	Preparation of project completion report; prepare project closing documents, evaluation	\$50,000
	Prepare final financial documentation	\$30,000
4	Reporting	
	Preparation and submission of reporting requirements	\$60,000
5	IA Corporate Costs	
	Legal costs, internal audit costs, IT and systems costs	\$218,500
	Total Costs	\$781,420

H. Disbursement Schedule

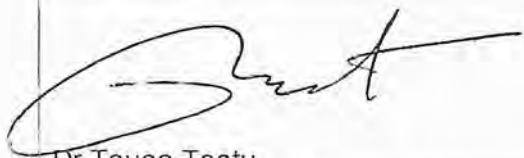
	Upon signature of Agreement	One Year after Project Start a)	Year 2b)	Year 3	Year 4 c)	Total
Scheduled date	June 2020	June 2021	June 2022	June 2023	June 2024	
Project Funds	2,519,780.00	2,424,905.00	2,579,105.00	1,500,965.00	168,480.00	9,193,235.00
Implementing Entity Fees	311,500.00	142,500.00	145,000.00	182,420.00		781,420.00
Total	2,831,280	2,567,405	2,724,105	1,683,385	168,480	9,974,655

a) Use projected start date to approximate first year disbursement
b) Subsequent dates will follow the year anniversary of project start

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY


A. Record of endorsement on behalf of the government⁴

The endorsement letter should be attached as an annex to the project/ programme proposal. Please attach the endorsement letter with this template.

 Dr Teuea Toatu Vice President and Minister of Finance and Economic Development Republic of Kiribati	Date: December 20 2019
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B. Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans i.e. Kiribati 20 Year Vision 2016 - 2036, Kiribati Water Resources Policy 2008, Kiribati National Sanitation Policy 2010, Kiribati Climate Change Policy, Kiribati Integrated Environment Policy 2013, Kiribati Gender Equality and Women's Development Policy 2019 - 2022, and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

 Kosi Latu Director Secretariat of the Pacific Regional Environment Programme (SPREP)	
Date: December 20, 2019	Tel. and email: +685 21929; Email: kosil@sprep.org
Project Contact Person: Melanie King, Manager – Project Coordination Unit Tel. And Email: +685 21929 ext 346; Email: melaniek@sprep.org	

⁴ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Annex A. Lessons learned incorporated into the AF Project

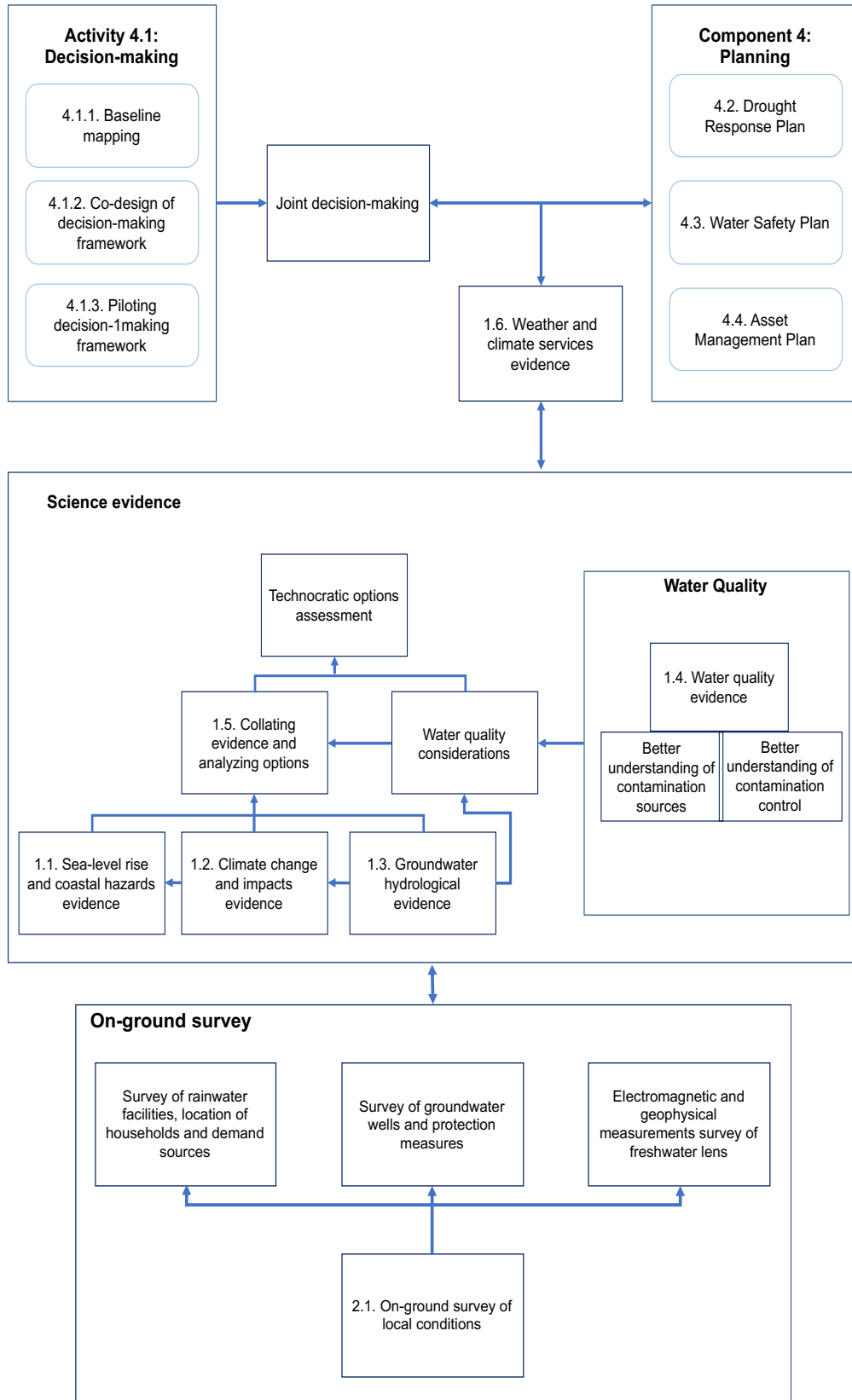
Scale and Scope	Lessons from the KIRIWATSAN project illustrate the importance of realistic project design and carefully estimating the number of islands and villages which can be provided with water and sanitation facilities for the funds available. Both the size of the funding envelope and the relatively short timeframe limited KIRIWATSAN's delivery targets for water and sanitation facilities to 35 villages on eight outer islands. The number of islands and villages selected under projects needs to reflect both funding availability and timescale
Funding activities	Activities need to be appropriately costed and funded to ensure effective delivery. The costs for delivering water and sanitation facilities to outer islands are very high both in monetary and time terms (i.e., the cost of undertaking evidence-base e.g. water resource assessments, materials, transportation, travel
Project setup	Time needs to be incorporated into project designs to include project set-up. Given the challenging environment, this enables projects time to finalise implementation arrangements, establish the platforms needed for island engagement, and establish effective logistical and procurement mechanisms.
Accountability	There is a need for regular monitoring and reporting involving the island water technicians, Island Councils and MISE to ensure that infrastructure and facilities are being maintained correctly and that water supply and quality are adequate. Consultations suggested that accountability mechanisms within islands are either not well established or carried out on an ad hoc basis. For example, the island water technicians report to the Island Council but do not necessarily report back up through the Ministry of Infrastructure and Sustainable Energy who fund their positions. Reporting on water supply, infrastructure and water quality is not a regular practice, reducing the information available at the Ministry level to further support actions required in the outer islands.
Selection criteria for islands and villages	A clear set of selection criteria for determining which islands and villages needs to be in place and clearly agreed with all stakeholders i.e. Government, Island Councils and communities
Linking science to interventions	Establishing the scientific assessments relating to freshwater lenses and climate projections is important to inform the options available for infrastructure interventions. Additionally, it is critical to engage with the community early in the process and share the findings with them, so as to ensure an understanding of the water availability and options.
Community consultation	Comprehensive engagement and inclusive consultations are required with key stakeholder groups (women, men, youth, disabled and other vulnerable groups, churches etc) on the outer islands, not just with the governing / decision-making bodies (i.e. Island Councils and elders or <i>Unimwane</i>). Engagement with all key groups enables ownership and 'buy-in' at the community level and enables all groups to be partaking in any decisions impacting on them.
Information and knowledge sharing	A commitment to the incorporation of community feedback into the design of interventions e.g. water harvesting and supply facilities, sanitation is critical. The feedback process needs to ensure that information sharing and feedback to the community are timely and

	<p>consistent. Knowledge and information should also be shared widely, rather than just with a few key decision-makers people within the communities. Different techniques (e.g. social media) should also be considered alongside the traditional mechanisms such as meeting in the <i>maneaba</i>. Furthermore, messaging to the communities needs to be consistent. Multiple messages may confuse people and make it harder to absorb information.</p>
Sustainability	<p>Projects need to design for the sustainability of activities and infrastructure beyond the life of the project. This should include the strengthening and support to existing governance structures (e.g. island councils, village systems, Government processes).</p>
Build capacity	<p>Building capacity for infrastructure construction and maintenance and a commitment to the follow-up of progress on each Outer Island through the Island Council, is critical to the sustainability of water and sanitation facilities. Projects will need to incorporate the engagement of communities in practical, hands-on learnings and exchanges to ensure sustainability.</p>
Behavioural Change	<p>Projects need to develop activities for changing targeted behaviours complement activities aimed at interventions that require long-term, sustained use, maintenance and support. However, it is also recognised that behavioural change takes time and can be generational.</p>
Local customs	<p>Traditional practices and culturally appropriate solutions need to be considered particularly in bringing about change in the use and maintenance of facilities.</p>

Annex B. Project Theory of Change



Annex C. Diagram illustrating the connectivity between components and activities



Annex D. Summary of meteorological / climate / groundwater monitoring in Kiribati outer islands

Island (Inhabited)	Historic monthly rain data	Synoptic stations (Manual station)	Aviation Weather stations (Manual and Automatic)	Telemetered AWS	AWS potentially funded under RESPAC	Groundwater	Atoll Islands Water Security Project (NZAID) Rain gauge + data logger	AF Proposal	Tide gauges	Wave buoy
Makin	1955-1990						✓	✓		
Butaritari	1945-Present	✓			✓			✓		
Marakei	1954-1995						✓	✓		
Abaiang	1950-1992						✓	✓		
North Tarawa										
South Tarawa	1947-Present	✓ (Bet)	✓ (Bon)	✓		✓ (Bon)			✓ (DFAT)	✓ (Bon)
Maiana	1955-1988			✓				✓		
Abemama	1944-1997			✓						
Kuria	1955-1994						✓	✓		
Aranuka	1955-1995						✓			
Nonouti	1953-1991						✓	✓		
Tabiteuea (North)	1958-1991				✓					
Tabiteuea (South)	1960-1991						✓	✓		
Beru	1944-Present	✓						✓		
Nikunau	1955-1992				✓			✓		

Onotoa	1953-1996							✓		
Tamana	1950-1996									
Arorae	1950-2002				✓					
Banaba	1904-1998				✓		✓			
Kanton	1937-Present	✓							✓ (UH)	
Teraina	1947-1990						✓			
Tabuaeran	1931-2002									
Kiritimati	1949-Present	✓ (Banana)	✓ (Banana)						✓ (UH)	

Synoptic stations:

3 hourly manual weather recording, daily rainfall

Rain gauge, data logger and manual download:

✓ (ws) installed under water security project,

✓ (ws) supplied under water security project but yet to be installed (as of August 2019). *Note if AWS for Banaba funded under RESPAC the rain gauge at Banaba will be relocated to Abaiang.

✓ Other (Bonriki water gallery/Airport and KMS compound in Betio).

Telemetered AWS:


✓ Airport AWS at Bonriki and Cassidy (KMS does not get access to the data at present)


✓ AWS (no rainfall) at Seaframe gauge at Betio Port / 3 AWS installed by NIWA on the Food Security project (all telemetered).

RESPAC project:

7 AWS initially requested. May be reduced to 5 so Kanton and Tabuaeran would not go ahead.

AF Project:

 Potential for telemetry on existing rain gauges

 No current automatic rain gauge or telemetry

**ENHANCING THE RESILIENCE OF THE OUTER ISLANDS
IN KIRIBATI**

**GENDER AND SOCIAL INCLUSION STRATEGY AND
ACTION PLAN**



Photo: Kate Walker

⁷¹ The complete GSI&AP is available from the Implementing Agency

INTRODUCTION

The overall objective of the project is to strengthen the resilience of 11 outer islands in Kiribati to the impacts of climate change through improved access to sustainable portable water supply as well as improved health and sanitation conditions. The absence of rivers and lakes in Kiribati means that regular and reliable rainfalls are essential to maintain supplies of fresh water for the health and well-being of its citizens. On the small islands of Kiribati, water is sourced primarily from rainwater stored in tanks, and from water well extraction from the small underground freshwater aquifers beneath coral atolls. Climate change, increased water salinity means that there is threat of saltwater intrusion into these underground freshwater aquifers which place atoll populations at risk. Women and men are differently affected by climate change and water access in Kiribati, thus the importance of inclusion of women and other vulnerable groups on any discussions on planned project interventions, training, implementation and monitoring. Interventions that target water access and sanitation in the outer atolls should be preceded by community consultations that are inclusive of women and other vulnerable groups. This is to ensure that interventions are supported by all sectors of the community, there is support for projects being implemented and the benefits are equitable and can be sustained long term through the participation of all sectors of the community.

With reference to the 1992 Rio Declaration on Environment and Development -Principle 20 on women's "vital role in environmental management and development" and Chapter 24 of Agenda 21 which focus on women's considerable knowledge and experience in managing and conserving natural resources, this project acknowledges the wealth of knowledge of women and experience in using and managing water resources in the outer islands of Kiribati. Women play a key role in the provision, management and use of water for basic household needs, know where to source water from in times of droughts and natural hazards and thus have knowledge of water use that is important to be part of any development plans on water security and access.

The Adaptation Fund's principles-based Gender Policy (GP) and its accompanying Gender Action Plan (GAP), 2 approved in March 2016, aim at mainstreaming gender and ensuring that projects and programmes supported by the Fund provide women and men with an equal opportunity to build resilience, address their differentiated vulnerabilities and increase their capability to adapt to climate change impacts. The project targets equal and improve access to water and sanitation amenities and improved water and sanitation also mean improved health and living conditions and welfare for all sectors of the population. Long term access to water and proper sanitation facilities will build the resilience of the community including women and other vulnerable groups.

The gender mainstreaming strategy builds on the existing gender policies and actions plans of other climate funds. The Gender Strategy and Action Plan systematically integrates key principles in the AF ESP including access and equity, marginalized and vulnerable groups, and human rights & expands the principle 5 of gender equality and women's empowerment. The Gender Strategy and Action Plan is part of the Social safeguards for the project that ensures long term sustainability and accountability and ensures long term resilience for the people.

Enabling mechanisms to ensure gender integration and consideration into the project is already in existence with gender integrated into key government strategies National Adaptation Programme of Action (NAPA) and the Plan on Climate Change and Disaster Risk Management (KJIP) in 2014 which had identified gender inclusion as a key principle that should be integrated into all strategies and actions of the plan There has been continuous progress on gender mainstreaming work in Kiribati through the inclusion of gender strategies in the NAP with specific gender inclusive approaches identified, the National Gender Policy which sets the platform for gender inclusive work and work on gender mainstreaming

undertaken by other projects like the UNICEF WASH project which had engaged women and men in different areas with the target of providing equal opportunities and services to women, men and other vulnerable groups.

GENDER AND SOCIAL INCLUSION ACTION PLAN

Gender inclusion or mainstreaming is a strategic priority of the Adaptation Fund and all projects and implementing partners shall strive to uphold women's rights as universal human rights and to attain the goal of gender equality and equal treatment of women and men, including equal opportunities for access to Fund resources and services, in all Fund operations through a gender mainstreaming approach. The Project has developed a Gender Action Plan which will be applied in conjunction with this ESMP throughout project design and implementation.

The AF's gender policy has the following objectives:

- i. To ensure that the AF will achieve more effective, sustainable and equitable adaptation outcomes and impacts in a comprehensive manner in both its internal and external procedures;
- ii. To provide women and men with an equal opportunity to build resilience, address their differentiated vulnerabilities, and increase their capacity to adapt to climate change impacts; recognizing the need for targeted efforts in order to ensure women's participation;
- iii. To address and mitigate against assessed potential project/programme risks for women and men in relation to concrete adaptation actions financed by the AF;
- iv. To contribute to addressing the knowledge and data gaps on gender-related vulnerabilities and to accelerate learning about effective gender-equal adaptation measures and strategies; and
- v. To consult with affected women and men actively, considering their experiences, capabilities and knowledge throughout the AF processes.

Objectives

Attain the goal of gender equality, social inclusion and achieving of strategic and practical needs of women and the equal treatment of women and men, including through targeted efforts to ensure participation of both women and men in adaptation actions financed by the Fund. Costs for interventions and activities identified in the Gender Action Plan are built into the project costs. The Gender Action Plan also ensures that there is accountability to gender inclusion through the monitoring of gender impacts.

Gender baseline

As baseline for the gender mainstreaming work, Kiribati has achieved gender parity in education and in many areas of work. In Secondary Education and in some areas of work women have surpassed men in attainment and in employment participation. Gender awareness is medium to high with key Government policies inclusion of gender specific targets that could result in transformative gender changes. Key government policies on climate change (NAPA) and the Plan on Climate Change and Disaster Risk Management (KJIP) in 2014 which had identified gender inclusion as a key principle that should be integrated into all strategies and actions of the plan. Project impacts under this proposal will involve the active involvement of women in areas of work they had not been previously engaged in. It will mean women working on water management, access and monitoring and participation of women and young people in these activities should demonstrate progression from just being gender aware and included to the gender transformative stage.

Gender Tools and Approaches to be used

The Project will employ participatory engagement tools that will ensure the full participation of all sectors of the community and will ensure that women, youth and vulnerable members of society will be included. Example of a toolkit that can be used is the Gender and Climate Change toolkit.⁷² There will be explicit targeting of women heads of households and excluded populations, e.g. PWDs; children (boys & girls) and unemployed youth. Consultations with male and female beneficiaries/stakeholders will be done separately and in mixed groups. In addition, there will be consultations with groups of men and women respectively by other social identities such as age or island origin in order to get gender responsive feedback. In addition, the team doing fieldwork will also include women facilitators to ensure gender responsive interactions. Participatory tools like time use surveys that can identify productive hours of men and women, social and resource mapping which will identify areas of work focus and the different gender roles and the problem tree which will identify the root causes of hindrances to women full inclusion in proposed project interventions will be used to ensure gender inclusive participation. These consultations will also enable the identification of strategic and practical needs of women and how proposed interventions and activities that specifically target gender inclusion can have desired impacts and be sustained in the long term. Culture continue to be a root cause of women inability to be part of decision making and to be included in development discussions, thus gender strategic needs will be met through training of the Council of elders and the community and the training of women and other vulnerable groups to be active players in water supply management and monitoring.

All attempts will be made to have community consultations away from the Maneaba, the traditional meeting house as women, youth and other vulnerable groups will not speak freely in these settings. Meeting times should be at times suitable for women when they are free from household chores so there is more gender equal participation. Have at least 40% participation by women and youth at meetings and have women facilitators where there could be a difference in the participation of women. All gender training and community consultations to be done in close liaison with the Ministry of Women and women associations in each location. Some of the tools to be used will be sourced from existing gender toolkits. The approach used in outer islands will vary from that used in Tarawa as traditional nuances that strongly influence the right for women and other vulnerable groups to speak in the outer islands may not be the same as in Tarawa.

Risks and Management

The Gender Action Plan outlines strategies and activities plus timelines, deliverables, partners to work with and indicators. There are however, risks that have to be expected and below are a list of risks and possible management strategies.

Risks	Management
The IE may not have the necessary gender expertise to conduct training for other partners or to conduct the gender work as stated in the proposal.	IE gender focal point to be assessed (and gaps in knowledge addressed through preparatory workshops/training sessions
There may not be gender focal points appointed in the different partners in government.	Partners to designate own gender focal point in order to facilitate the exchange with partners on any gender-specific issue
Monitoring, including identifying challenges, barriers and constraints to gender responsive implementation	These gaps and challenges should be addressed and mitigated during implementation.
The targeted inclusion of women in all decision-making processes and capacity-building activities (for example through progressive	It is important for the IE to conduct regular project/programme review meetings with the EEs and stakeholders so that adaptive management

⁷² <https://www.pacificclimatechange.net/document/pacific-gender-climate-change-toolkit-complete-toolkit>

quotas aiming for gender-balance) may face real-time challenges	might be necessary to ensure the sustainability of gender-responsive activities after the project/programme implementation has started.
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Table 4: Plan of Activities⁷³

Priority Areas, Objectives & Activities	Stakeholder/ partners	Timeline	Deliverable	Indicators
Priority Area 1: Capacity building, knowledge sharing and communication.				
Component 4: Strengthening coordination mechanisms for water resource management at Government, Island and Village level				
Capacity building, knowledge sharing, and communication involve the participation of women.	IE and Partners	On-going	40% of female stakeholders targeted and training to be targeted to age appropriate level, youths and elders.	40% women trained in staff gender training and at least 1 training per site conducted targeting youth and other groups
Enhance the capacity of stakeholders to develop gender-responsive strategies, capacity building and equitable access to information.	Government IE and Island Councils.	At the start of the project	Gender responsive strategies built into interventions developed.	Training of trainers on gender inclusion conducted with IE and with the three island councils. Number of women trained as trainers
Equitable access to knowledge of the project and planned interventions.	Government IE and Project Teams.	On-going	Vigorous consultations on the project to target men, women and other vulnerable groups.	All men and women in communities have equity in information and knowledge about the project.
Communication strategies to take into account differences in access and power by women and men.	IE and Partners	Once implementation starts	Communication tools targeting the different needs of men and women developed.	Improved communication with more than 50% of women and vulnerable groups reached.
Effective gender planning to ensure the participation of men	Government partners and	Project design phase	All planned project interventions/activities are	Specific outcomes target women inclusion and participation.

⁷³ Funding for the gender strategy and action plan is inbuilt into the Project Funding

and women in all project interventions and training.	NGOs / Women organizations.		gender inclusive	
Skills building and training in monitoring of water resource and sanitation to include women and other vulnerable groups.	IE and Project Team	Implementation phase ongoing	A gender approach in all training modules & equitable access to awareness raising, knowledge management and monitoring	50% women included in monitoring and other work undertaken.
Collection of sex disaggregated data in all target sites to set gender livelihoods, water reliance baseline.	IE and Partners, NGOs. Councils.	From consultation phase and on-going	Young men and women in communities trained in data collection and monitoring.	Sex disaggregated data available as baseline and to be used for monitoring of project.
Consultations include mixed groups and separate sex/age /status focus group meetings in communities		Consultation phase prior to start of project	Participatory approaches used for all consultations and the women/men only and mixed groups meetings conducted.	All PRA sessions at community level to be in different gender, age and status groupings
Systematic integration of gender sensitive and participatory education, training, public awareness, of information from national to local level.	IE and Council	On-going	Gender sensitization covers all diverse range of stakeholder's women.	Gender sensitization training/ lessons learnt to 150 local stakeholders.
Planned benefits to include women and other minority groups finding employment and being part of the coastal adaptation work.	Women NGOs and Ministry of Women	Implementation and mid-term evaluation	Women are employed in the coastal adaptation work.	More than 20% of community members working on the project are women.
Increased participation of women through training of project staff in gender inclusive approaches.	Implementing Agencies	On-going implementation stages Following implementation	Training on gender mainstreaming from National to local level.	Training of trainers undertaken. A Pool of trainers at government level.
Increased access to water supply and good sanitation amenities	Implementing Agencies	On-going	Access to sustainable and safe water supplies and sanitation amenities	More than 50% of all women headed households have access to safe water.

				Women in all households have access to safe water and good, working sanitation facilities.
Priority Area 2: Gender balance, participation and women's leadership				
Component 2: Water harvesting and supply systems in the outer islands				
Balanced representation of men, women and other vulnerable groups in village committees, in trainings conducted on water harvesting and supply systems in outer islands	IE and partners	On-going	Gender balanced participation in planning process. Women to be part of all decision-making processes related to the project.	40% participation in all committees, in trainings conducted at the community level is by women, youth and other vulnerable groups.
Capacity development to Government level / partners	Ministry of Women and Rural Development Ministry.	First 6 months-before implementations	All sectors (IE) have the capacity to integrate gender into their work. Tools developed to assist in gender mainstreaming activities.	Gender Toolkit developed and used.
Water and sanitation infrastructure implemented through consultation and participation of women, men and all sectors of the community.	IE & Partners	1 st year of implementation-ongoing	Women equally participate in water infrastructure, and sanitation projects	Equitable participation of men, women, youth and vulnerable groups in water and sanitation infrastructure developments
Women, men, youth and vulnerable groups in selected villages on selected outer islands are using and maintaining the installed water resource infrastructure	IE, Partners and Island Councils, Women Associations	Implementation stage	Women, youth and minority groups are participating and included in implementation and use of installed water resource infrastructure.	More than 50% of women and vulnerable groups using and maintaining installed water resources infrastructure
Priority Area 3: Coordination and collaboration:				
Component 5: Facilitating the sustainability of project outcomes into the outer islands and at the national level				
Strengthening coordination mechanisms and decision-	IE & Councils	First 6 months	Decision making to include all government	Coordination mechanism set up includes gender focal points in

making through developing and implementing integrated water and sanitation management plans			stakeholders, island partners and Women Organizations.	Implementing Entities and women organizations at the community level.
Component 1: Establishing the evidence base for water and sanitation interventions at the island and village level				
Awareness and capacity building for all IE- inclusion of scientific, cultural and social knowledge	CSIRO/IE	Before finalization of project design/implementation	IE & partners training and awareness on evidence base for water and sanitation intervention	Training on scientific components of the project to include women at IE and community levels done.
Institutional strengthening in water resource and sanitation responses at Government, Island and Village level-through training and capacity building.	Implementing Entities & Partners	On-going	Identifying and training of gender focal points in the different Implementing agencies.	Trainings for Women Organizations conducted in all target sites 40% of staff in IE, partners, women organizations has capacity to conduct and implement gender mainstreaming in project interventions. Number of gender focal points in the different implementing agencies
Priority area 4: Gender responsive implementation and means of implementation				
Component 3: Culturally appropriate information that can assist other community intervention activities such as WASH and locating of community facilities such as toilets, animal pens etc.				
Implementation of interventions and activities are gender inclusive and culturally accepted.	IE & Government partners	Implementation phase and on-going	All implementation activities are culturally sensitive.	Women participate through culturally appropriate entry points in management of water quality and in the water safety plan approach
Communication form and take account of the gender differences in access to information. technology.	IE and partners	Project implementation phase.	Technology, non-written forms of communication to be used (radio, interviewers, picture-based leaflets) to reach the most vulnerable women	Gender responsive communication media developed.

<p>Community members need to be involved in the design of solutions</p> <p>Agreement with the island councils and <i>Unimwanes</i> in the choice of water and sanitation solutions is important, and notions of fairness to be taken important, and notions of fairness to be taken</p>	Unimwane and IE & Partners	Implementation stage	Designing of solutions to include all the relevant stakeholders, i.e. youth groups and women. This will ensure that designs are fit for purpose	All decision-making forums relating to water and sanitation solution have at least 40%
<p>Labour needs and inclusion of women to take domestic and other roles into account.</p>	Unimwane and IE & Partners	Design and preparation stage	Gender fairness and equity taken into account in design of projects	Decisions taken include gender consideration and equity.
<p>Component 4: A community-based approach to enable communities to fully engage in deciding their priorities, weighing the different options, appropriate levels of service in relation to costs</p>				
<p>A community-based approach to enable communities to fully engage in deciding their priorities, weighing the different options, appropriate levels of service in relation to costs</p>	IE and Women Associations	Pre- implementation stage	Inclusion of women does not mean double or triple burdens	Young women & men included, shift in roles to accommodate women inclusion in the projects evident.
<p>Undertake an analysis of cultural norms to identify barriers and constraints relating to sanitation options</p>	Island Councils and IE	Pre-implementation	Analysis undertaken with gender norms and gender barriers identified,	Entry points to address identified barriers identified.
<p>Community-level collection of qualitative data on existing sanitation practices and how sanitation practices are embedded in cultural, social,</p>	Ministry of Women, UNICEF, and IE	Pre-implementation	Existing sanitation practices identified, and risks management undertaken, awareness	Risks management strategies identified and tools to address developed

economic and geographic contexts				
Continued education and training of communities in the WASH principles	IE & partners, UNICEF	Design phase and pre-implementation and ongoing	TOT on WASH to target community leaders including women.	Team of trainers trained, and work carried out in all sites.
Engage with broader sectors of the community i.e. women, youth, minority groups - to develop and implement WASH information and awareness trainings.	Ministry of Women & UNICEF	Implementation stage	Women and other groups fully engaged in wash trainings	Balanced number of men and women trainers undertakes education and training in communities. Behaviour change evident in all three sites.
Priority Area 5: Monitoring and reporting include gender specific indicators.				
Component 1: Establish a 'whole-of island' approach to monitor water quality. Implementation of a training and mentoring programme				
Monitoring of water quality training undertaken at community level	CSIRO staff/Staff from IE	Implementation stage	Training and mentoring on monitoring at community level	Monitoring training is gender balanced. At least 1 woman monitor in each island.
Collection of sex disaggregated data	IE & Local community members	At start of project and on-going	Sex disaggregated data on gender water dependence, water use and management collected and tabulated.	50% of those trained for data collection both in government and at the local level are women & from minority groups.
Specific gender inclusive activities tracked for progress of women.	IE & partners/local community authorities	Implementation and Ongoing	Women progress tracked and changes to gender roles Monitored through indicators	Indicators developed to monitor progress of women.

Annex F. Key policies and Project linkages

No.	Government Policy ⁷⁴	Policy Objectives/Priorities*	Project Component**				
			1	2	3	4	5
1	Kiribati 20 Year Vision 2016 – 2036	Wealth Pillar Peace and Security Pillar Infrastructure Development Pillar ⁷⁵ Governance Pillar Cross-cutting issues	✓	✓		✓	✓
3	Kiribati Water Resources Policy 2008	<ul style="list-style-type: none"> - Increase access to safe and reliable water supplies - Achieve sustainable water resource management - Improve understanding and monitoring of water resources and their use - Improve protection of public freshwater sources - . Increase community awareness of and participation in the protection, management and conservation of water - Improve governance in the water sector - Decrease unaccounted for water losses, improve cost recovery and find alternate sources of water 	✓	✓	✓	✓	✓
4	Kiribati National Sanitation Policy 2010	<ul style="list-style-type: none"> - Develop technically appropriate and cost-effective sewerage and sanitation options for the urban, peri- urban and rural circumstances of Kiribati - Increase coverage and access to effective and reliable sewerage and sanitation systems in South Tarawa, and the Outer Islands. - Obtain community support and commitment for appropriate sewerage and sanitation options and sustainable operations - Improve understanding of effective sanitation and the benefits to improved community health, natural resources and the environment - Improved and well maintained systems and practices/behaviour that avoids pollution of groundwater resources and lagoon waters 	✓	✓	✓	✓	✓

⁷⁴ The water resource, sanitation, and integrated environment policies are currently under review

⁷⁵ The KV20 mentions water as a constraint for achieving private sector development and maintaining peace and cites water and sanitation as a social determinant of health. The greatest emphasis on water and sanitation is in the section on utilities. The KV20 also mentions equitable distribution of and access to water, sewerage and sanitation services under the cross-cutting issue of Gender, Youth, Vulnerable Groups and Equity.

No.	Government Policy ⁷⁴	Policy Objectives/Priorities*	Project Component**				
			1	2	3	4	5
		<ul style="list-style-type: none"> - Well-engineered and technically appropriate sewerage and sanitation systems - Increase community awareness of and participation in the choice, provision, management and maintenance of effective sanitation - Community health education, awareness and behaviour - Reduce risks of cross- contamination of water supplies and ground water sources - Improved maintenance and operation of public systems and household sanitary installations and fittings - Improve governance of the sanitation sector - Efficient institutional arrangements and roles - Review building code to include plumbing and drainage regulations - Asset management plans for sewerage and sanitation systems and services - Cost recovery for sewerage and sanitation services 					
5	Kiribati Climate Change Policy	<ul style="list-style-type: none"> - Coastal protection and infrastructure - Food security - Water security - Energy security - Environmental sustainability and resilience - Health security - Disaster risk management - Unavoidable climate change impacts - Capacity building and education - Climate finance 	✓	✓	✓	✓	✓
6	Kiribati Integrated Environment Policy 2013 ⁷⁶	<ul style="list-style-type: none"> - Strengthen national capacity for effective response and adaptation to climate change, with a particular focus on environmental protection and management - Strengthen national capacity and institutional frameworks for the effective conservation, management and sustainable use of Kiribati's terrestrial and marine biodiversity 	✓	✓	✓	✓	✓

⁷⁶ In 2008 the environment emerged as a Key Policy Area of the KDP. This first appearance of the environment on the development agenda for Kiribati at national level is considered a 'break through success' for the environment sector. Building on this, the Ministry of Environment, Lands and Agriculture Development (MELAD) took the opportunity to enhance the mainstreaming of the environment into the national development agenda, through the development of the Kiribati Integrated Environment Policy (KIEP). The KIEP was aimed at strengthening the coordination, collaboration and coherent implementation of the existing thematic environmental area plans and activities. It clarified the roles and responsibilities of the different networks of relevant and key sectors and stakeholders in a rapidly expanding national environmental planning regime, and developed mechanisms for increased effective stakeholder consultation, interaction and cooperation. It was not intended to replace the existing thematic area plans and action strategies, but rather to provide an integrated framework for their effective implementation. The KIEP was tied into the term of the 2012-2015 KDP.

No.	Government Policy ⁷⁴	Policy Objectives/Priorities*	Project Component**				
			1	2	3	4	5
		<ul style="list-style-type: none"> - Foster behavioural changes through education, awareness raising campaigns, enforcement of regulations, and capacity building that minimise waste generation and promote best waste management and pollution prevention practices - Ensure that the management of waste and control of pollution are financially self-sustaining. - Mainstream chemical and waste management into national development programmes - Facilitate long-term planning and preparations to respond to the impacts of global climate change in order to build the resilience of the environment through integrated waste management and pollution control programs undertaken at a national level through MELAD - Promote use and development of Kiribati's non-living land, water, coastal and mineral resources - To advance the development of capacities and systems for implementing effective environmental governance 					
7	Kiribati Gender Equality and Women's Development Policy 2019-2022	<ul style="list-style-type: none"> - Gender mainstreaming - Women's economic empowerment - Stronger, informed families - Women's political participation and leadership - Eliminate sexual and gender-based violence 	✓	✓		✓	✓

*/ Policy priorities with potential for support from the project indicated in bold.

**/ Project components with potential for making a contribution to Kiribati policy priorities are indicated.

The project components are:

1. Empowering community and government in joint decision-making
2. Institutional strengthening for water resource and sanitation responses
3. Establishing the evidence base for water and sanitation interventions
4. Water harvesting and supply systems in outer islands
5. Piloting sanitation approaches in outer islands

Annex G. Environmental and Social Management Plan⁷⁷

Republic of Kiribati

Enhancing the Resilience of the Outer Islands of Kiribati

Environmental and Social Management Plan

⁷⁷ The complete ESM Plan is available from the Implementing Agency

Introduction

This Environmental and Social Management Plan (ESMP) has been prepared to document the environmental and social risks and impacts presented by the Project and sets out the associated mitigation and management measures that will be implemented as part of project delivery.

Initial project screening based on field investigations, stakeholder meetings and a desktop study of similar projects in the region as well as a review of potential options confirms an assessment of Category B for the Project. It finds that potential impacts are less than significant, site specific, mostly reversible and that a range of potential measures for mitigation can be readily designed in the majority of cases. In accordance with the Adaptation Funds (AF) Environmental and Social Safeguard (ESS) policy, an environmental assessment was required to adequately screen and assess potential environmental and social impacts, and to prepare an ESMP.

Therefore, this ESMP has been produced to ensure the integration of environmental and social stewardship into the Project as required by the Republic of Kiribati's relevant laws and regulations and the Environmental and Social Safeguards Policies of the Adaptation Fund.

The ESMP provides the set of mitigations, monitoring, and institutional measures to be taken during the implementation and operation of the Project to eliminate adverse environmental and social impacts, offset them or reduce them to acceptable levels. The ESMP also includes the actions needed to implement these measures.

At this stage of project preparation, there are still some unknowns such as the outer islands to be targeted in this project, the villages selected on those targeted islands and the specific locations of water security interventions therefore this ESMP provides guidance for screening of potential locations to assist with the final selection process, and covers all foreseeable risks and impacts and provides the relevant suite of mitigation measures.

Environmental and Social Management Plans

Introduction

Sections 6.2 below contains the required management plan for the physical investments as well as the associated Monitoring Plan for each of the physical investment areas. The management plan includes measures to satisfy both National legislation as well as the Adaption Fund (and SPREPs) safeguard policies. They describe details of the mitigation measures required, the responsible entity and the applicable project phase.

Monitoring Plans are also provided for physical investments. These plans include items which require a one-off check prior to commencement of works and parameters which need to be monitored weekly to ensure ongoing compliance during construction phase. Where appropriate, there are also recommended monitoring requirements for the operational phase of the works, however these will be the responsibility of the relevant authority to include in their own maintenance arrangements after project completion.

Section 6.3 provides the Project team for a guide to site selection for water security investments, particularly the sites for well upgrades. These tend to be 'rules of thumbs' and will need to be applied in the context each village.

Section 6.4 provides some higher-level guidance to the EE and IE on how to ensure environmental and social safeguards are implemented into the technical advisory activities. This ensures that all contracts, TORs, policies, plans, frameworks, etc developed under this project are screened to ensure that the development process and the recommendations follow the principles of the Adaptation Fund.

Management Plan for Water Security Measures

Environmental and Social Management Plan

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
1 Design/Pre-Construction Phase – Water Security Measures						
Site Selection for Water Security Investments	Equitable access to communal water supply compromise if investment is installed on private land without formal lease agreement in place, if land use around well head isn't managed and if investments are installed on land owned by other institutions.	<ul style="list-style-type: none"> • Consultations with the landowners will be ongoing through the design process. • No installations will be made on private land without a formal registered lease between the landowner and MISE being in place. • All water security investments will be made on land specifically leased for this purpose and not tied to usage restrictions by third parties. • Leases will include the MISE standard land use 'buffer zone' required around well heads. • The correct process for leasing as detailed in this ESMP shall be used in all instances. • No compulsory land acquisition will be used for any investment. 	Included in ESMP Budget	During project scoping period	PMU Comms Officer	Technical Coordinator
Design of Toilets	Lack of use of any toilet facilities is design and location are not culturally appropriate	<ul style="list-style-type: none"> • Implement the Stakeholder Engagement and Consultation Plan to assist selection of appropriate toilet systems and installation sites. 	Included in ESMP Budget	During project scoping period	PMU Comms Officer	Technical Coordinator
	Self-Composting Toilet (SCT) design allows too much light into toilet chamber causing to user to see other human waste leading to overuse of bulking agent and/or abandonment of SCT.	<ul style="list-style-type: none"> • Ensure the waste pile is some distance below the toilet seat and that little light is getting in so that it is hard to see into the toilet. The design should use a pedestal with a round hole at the lower end rather than a toilet seat placed onto a box. • The SCT designers are required to use the SPC document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites (https://integre.spc.int/images/telechargements/compost_toilets_and_the_potential_for_use_in_the_Pac_islands_-_ANG.pdf). 	Part of standard design costs	During design	Designers	Technical Coordinator

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
	Lack of readily accessible and easily gathered bulking agent leading to disrupted composting process, foul odours, additional burden on women to gather some types of bulking agent and/or abandonment of composting toilets	<ul style="list-style-type: none"> • Consultations with the communities to discuss their preferred bulking agent and also raise awareness of the likely additional workload and importance of using this bulking agent. All consultations to be undertaken in such a way to ensure meaningful input by women. • The SCT designers are required to use the SPC document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites. 	Part of standard design costs	During design	Designers	Technical Coordinator
	Urine separation facility can lead to foul smelling odour from soils receiving output waste	<ul style="list-style-type: none"> • Banana circles planted close to the toilet to take the urine drain and process the leachate from the toilet is a very effective and sanitary solution • The SCT designers should be required to use the SPC document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites. 	Part of standard design costs	During Design	Designer & Community	Technical Coordinator
Design of water extraction from wells	For mechanical extraction, risk of failure of electrical (including solar) pumps	<ul style="list-style-type: none"> • Use the Kiribati designed 'Tamana' pump to extract water. This pump required no electrical motor and is built from various sizes and lengths of PVC piping. This design is widely used throughout Kiribati to extract water with a great degree of success. The Tamana Pump's basic components are 25mm PVC pipe, usually up to 30m long; a 50mm PVC pipe, 1m long; 1 25mm to 50mm, 45o PVC reducer bend; a 25mm elbow; a 25mm PVC male adaptor; a foot valve; and, a piston made of one-half in PVC piping. • The design solutions will minimise the use of electric (including solar) pumps and maximise the MISE standards for manual pumps and gravity fed systems • All electrical pumps installed will have a manual back up system in place of either a Tamana pump for moving water across distances, or the 'Abaiang' Pump for pumping well water to a header tank. • Any electric pumps installed will be compliant with the MISE specifications and brands preferences. 	Design elements – part of standard design costs Capacity building elements - Included in Project budget	During Design	Project designers	Technical Coordinator

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
		<ul style="list-style-type: none"> MISE Water Technicians will be offered upskilling to expand their knowledge and ability to repair pumps in the field. Youth and Women will be provided training on the repair and maintenance of manual pumps, the Water Technician will still be required to inspect all repairs. All groups who request participation in technical training or capacity building will be enabled to participate. 				
	Potential contamination of open wells from run off, debris and mosquitos	<ul style="list-style-type: none"> All wells targeted under this project will be covered. Use the Tamana pump (to MISE specifications) to extract water. Capacity building for all interested community members (including women and youth) for manual pump building and maintenance and well covering techniques. 	Included in Project budget	Prior to finalization of designs	Project designers	Technical Coordinator
Community Engagement	Disengagement of the community from the Project process and lack of 'buy in' leading to difficulties during implementation	<ul style="list-style-type: none"> Community members will not be required to provide free labour, workers will be paid for their work. The ESMP has developed a Stakeholder Engagement and Consultation Plan which will be fully resourced by the Project budget and will be implemented by the MISE PMU Communications and Outreach Officer. The projects Gender Action Plan also has requirements for inclusive consultations and will be implemented by the PMU Gender Officer. The ESMP and Gender Action Plan should be considered as one document for the purposes of consultations and the Communications and Outreach Officer and Gender Officer will work together to implement. The project is designed to include an island level 'sign off' on all key decisions to ensure that island support is built into project design. 	Included in ESMP Budget	Ongoing throughout Design	PMU Comms Officer	PMU Project Manager
Construction Phase – Water Security Intervention						
Solid waste production during construction	Overburden on existing waste management practices	<ul style="list-style-type: none"> All solid waste will be securely stored at construction laydown site until disposal. Solid waste which cannot be reused, recycled, composted or otherwise utilised by the community will 	Part of Standard Practices	Throughout construction	Contractor	Project Management Unit

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
		be removed from the island and disposed of at a permitted landfill on the main island of that state.				
Operation of laydown site	Environmental risks to ground water, coastal water and soil from poorly planned and managed construction staging and laydown site	<ul style="list-style-type: none"> Laydown areas will be sited on public or government owned land. Areas will be securely fenced. Bunded and covered areas will be installed for the storage and handling of hazardous materials and/or substances, the wash down of machinery and the preparation of concrete. Run off from these bunded areas will be collected, treated and tested before being either reused for construction purposes or allowed to discharge into the ground, away from the marine environment. Discharge will be at a rate to allow absorption without causing surface flooding. Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure. Water conservation measures will be implemented, and workers trained on this. Regular inspection of machinery to ensure it is in good working order. 	Part of Standard Practices	Throughout construction	Contractor	Project Management Unit
Concrete production for foundation pads or well heads	Ground water pollution	<ul style="list-style-type: none"> Concrete will be prepared on bunded and covered hard stand surface of laydown areas. All wastewater from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes. Slurry from concrete production will be collected and treated. Treatment can vary depending on viscosity of slurry but can include the same measures described for treating concrete wastewater or can be by facilitating the solidification of the slurry to form a gel which can be stored and disposed of according to the Solid Waste Management Plan. 	Part of standard practices	Throughout construction	Contractor	Project Management Unit

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
		<ul style="list-style-type: none"> • Solid and cured concrete waste is considered safe to be reused by the community for infrastructure maintenance. • The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete wastewater or slurry. 				
Community Engagement	Lack of progress or support towards construction	<ul style="list-style-type: none"> • The ESMP has developed a Stakeholder Engagement and Consultation Plan which will be fully resourced by the Project budget and will be implemented by the MISE PMU Communications and Outreach Officer. • The projects Gender Action Plan also has requirements for inclusive consultations and will be implemented by the PMU Gender Officer. • The ESMP and Gender Action Plan should be considered as one document for the purposes of consultations and the Communications and Outreach Officer and Gender Officer will work together to implement. 	Included in ESMP Budget	Throughout implementation	PMU Comms Officer	PMU Project Manager
Operation Phase – Water Security Interventions						
Maintenance of water harvesting and ground water systems (household)	<p>Contamination of harvested water from dirty guttering and/or mosquito infiltration of storage tank</p> <p>Interruption of household supply through broken pumps</p>	<ul style="list-style-type: none"> • Training materials to be developed in local language to cover the key areas of maintenance – Tamana pump repair, period clearing or gutters, maintenance of any mosquito screens, etc. • Detailed training on the need for and correct method of maintenance will be given to both men and women during project implementation. • Information posters should be installed in communities to ensure ongoing reminders of correct use and maintenance. 	Included in Project Budget	Ongoing after project completion	Project Coordinating Unit	MISE

Activity	Significant Potential Impacts	Mitigation Measures	Cost	Timing/ Duration	Who Implements	Who Supervises
Use and Maintenance of Self Composting Toilets	Poor maintenance of SCTs will lead to pathogens remaining active in the compost mix.	<ul style="list-style-type: none"> • Training materials to be developed in local language to cover the key areas of maintenance – lack of available bulking agent, lid not being kept closed, chamber not being emptied according to designers schedule. • Detailed training on the need for and correct method of SCT maintenance should be given to both men and women. • Information posters should be installed in communities to ensure ongoing reminders of correct use and maintenance of SCTs. 	Included in Project Budget	Ongoing after project completion	Project Coordinating Unit	MISE

Monitoring Plan for Water Security Interventions

Activity	Mitigation Measures	Monitoring / Frequency	When	Who will monitor	Supervision
1 Design/Pre-Construction Phase – Water Security Measures					
Site Selection for Investments	<ul style="list-style-type: none"> • Consultations with the landowners will be ongoing through the design process. • No installations will be made on private land without a formal registered lease between the landowner and MISE being in place. • All water security investments will be made on land specifically leased for this purpose and not tied to usage restrictions by third parties. • Leases will include the MISE standard land use 'buffer zone' required around well heads. • The correct process for leasing as detailed in this ESMP shall be used in all instances. • No compulsory land acquisition will be used for any investment. 	One off: Signed land lease sighted for all installations on private land. Lease to include land use 'buffer zone' from well head as per MISE policy standards.	Prior to finalization of site selection	MISE	SPREP
Design of Toilets	<ul style="list-style-type: none"> • Implement the Stakeholder Engagement and Consultation Plan to assist selection of appropriate toilet systems and installation sites. 	One off: Community input is evidenced in selection of final design and site	Prior to approval of design	MISE	SPREP
	<ul style="list-style-type: none"> • Ensure any SCT waste pile is some distance below the toilet seat and that little light is getting in so that it is hard to see into the toilet. The design should use a pedestal with a round hole at the lower end rather than a toilet seat placed onto a box. • The SCT designers are required to use the SPC document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites. 	One off: Design of SCT to ensure it meets these standards	Prior to approval of design	MISE	SPREP
	<ul style="list-style-type: none"> • Consultations with the communities to discuss their preferred bulking agent and also raise awareness of the likely additional workload and importance of using this bulking agent. All consultations to be undertaken in such a way to ensure meaningful input by women. • The SCT designers are required to use the SCT document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites. 	One off: Evidence that bulking agent has been selected based on community consultation	Prior to approval of design	MISE	SPREP

Activity	Mitigation Measures	Monitoring / Frequency	When	Who will monitor	Supervision
	<ul style="list-style-type: none"> Banana circles planted close to the toilet to take the urine drain and process the leachate from the toilet is a very effective and sanitary solution The SCT designers should be required to use the SPC document 'Composting toilets and the potential for use in the Pacific Islands' as a guide for considerate design of SCTs at the Project sites. 	One off: design incorporates banana circle and evidence that this has been consulted with the community	Prior to approval of design	MISE	SPREP
Design of water extraction from wells	<ul style="list-style-type: none"> Use the Kiribati designed 'Tamana' pump to extract water. The design solutions will minimise the use of electric (including solar) pumps and maximise the MISE standards for manual pumps and gravity fed systems All electrical pumps installed will have a manual back up system in place of either a Tamana pump for moving water across distances, or the 'Abaiang' Pump for pumping well water to a header tank. Any electric pumps installed will be compliant with the MISE specifications and brands preferences. MISE Water Technicians will be offered upskilling to expand their knowledge and ability to repair pumps in the field. Youth and Women will be provided training on the repair and maintenance of manual pumps, the Water Technician will still be required to inspect all repairs. All groups who request participation in technical training or capacity building will be enabled to participate. 	<p>One off:</p> <p>Design incorporates Tamana pump for all upgraded well heads</p> <p>Design incorporates back up manual pump for electrical pumps</p> <p>Training has been offered and planning is underway</p>	Prior to approval of final design	MISE	SPREP
	<ul style="list-style-type: none"> All wells targeted under this project will be covered. Use the Tamana pump (to MISE specifications) to extract water. Capacity building for all interested community members (including women and youth) for manual pump building and maintenance and well covering techniques. 	<p>One off:</p> <p>All wells are designed to be covered</p> <p>Households have manual pumps</p> <p>Training has been offered and planning is underway</p>	Prior to approval of final design	MISE	SPREP

Activity	Mitigation Measures	Monitoring / Frequency	When	Who will monitor	Supervision
Community engagement	<ul style="list-style-type: none"> Community members will not be required to provide free labour, workers will be paid for their work. The ESMP has developed a Stakeholder Engagement and Consultation Plan which will be fully resourced by the Project budget and will be implemented by the MISE PMU Communications and Outreach Officer. The projects Gender Action Plan also has requirements for inclusive consultations and will be implemented by the PMU Gender Officer. The ESMP and Gender Action Plan should be considered as one document for the purposes of consultations and the Communications and Outreach Officer and Gender Officer will work together to implement. The project is designed to include an island level 'sign off' on all key decisions to ensure that island support is built into project design. 	<p>One off per island: agreements with communities do not require 'free labour'.</p> <p>Design solutions are approved by Island Councils</p> <p>Periodic: SECP and GAP consultation requirements are being implemented correctly.</p>	Ongoing throughout	MISE	SPREP
Construction Phase – Water Security Measures					
Solid waste production during construction	<ul style="list-style-type: none"> All solid waste will be securely stored at construction laydown site until disposal. Solid waste which cannot be reused, recycled, composted or otherwise utilised by the community will be removed from the island and disposed of at a permitted landfill on the main island of that state. 	<p>Weekly: Waste collection at laydown area is secure, well signed and clean.</p> <p>Good housekeeping around project sites.</p> <p>Waste is being stored neatly prior to disposal.</p>	For duration of works	Project Management Unit	MISE
Operation of laydown site	<ul style="list-style-type: none"> Laydown areas will be sited on public or government owned land. Bunded and covered areas will be installed for the storage and handling of hazardous materials and/or substances, the wash down of machinery and the preparation of concrete. Run off from these bunded areas will be collected, treated and tested before being either reused for construction purposes or allowed to discharge into the ground, away from the marine environment. 	One off: All mitigation measures are in place	Prior to commencement of works	Project Management Unit	MISE

Activity	Mitigation Measures	Monitoring / Frequency	When	Who will monitor	Supervision
	<p>Discharge will be at a rate to allow absorption without causing surface flooding</p> <ul style="list-style-type: none"> • Segregated storage for solid waste will be provided. This area will be clearly marked and designed to ensure that as waste is secure. • Water conservation measures will be implemented, and workers trained on this. • Regular inspection of machinery to ensure it is in good working order. 	<p>Weekly: all mitigation measures are in place and functional as per ESMP.</p>	<p>For duration of works.</p>	<p>Project Unit</p>	<p>MISE</p>
<p>Concrete production for foundation pads or well heads</p>	<ul style="list-style-type: none"> • Concrete will be prepared on bunded and covered hard stand surface of laydown areas. • All wastewater from concrete production will be collected and treated to lower the pH and allow particulates to settle out before being recycled for construction purposes. • Slurry from concrete production will be collected and treated. Treatment can vary depending on viscosity of slurry but can include the same measures described for treating concrete wastewater or can be by facilitating the solidification of the slurry to form a gel which can be stored and disposed of according to the Solid Waste Management Plan. • Solid and cured concrete waste is considered safe to be reused by the community for infrastructure maintenance. • The Contractor's will have a spill response plan in place to manage accidental spills or leakages of concrete wastewater or slurry. 	<p>One off: all mitigation provisions are in place</p>	<p>Prior to commencement of concrete production</p>	<p>Project Unit</p>	<p>MISE</p>
		<p>Weekly: concrete production is occurring at designated area; water catchment and treatment systems are functional</p>	<p>During concrete production works</p>	<p>Project Unit</p>	<p>MISE</p>

Activity	Mitigation Measures	Monitoring / Frequency	When	Who will monitor	Supervision
Community Engagement	<ul style="list-style-type: none"> The ESMP has developed a Stakeholder Engagement and Consultation Plan which will be fully resourced by the Project budget and will be implemented by the MISE PMU Communications and Outreach Officer. The projects Gender Action Plan also has requirements for inclusive consultations and will be implemented by the PMU Gender Officer. The ESMP and Gender Action Plan should be considered as one document for the purposes of consultations and the Communications and Outreach Officer and Gender Officer will work together to implement. 	Periodic: SECP and GAP consultation requirements are being correctly implemented	In monthly reports	Project Manager	MISE
Operational Phase					
Maintenance of water harvesting systems	<ul style="list-style-type: none"> Trainings and materials to be developed in local language to cover the key areas of maintenance – Tamana pump repair, period clearing or gutters, maintenance of any mosquito screens, etc. Detailed training on the need for and correct method of maintenance will be given to both men and women during project implementation. Information posters should be installed in communities to ensure ongoing reminders of correct use and maintenance. 	Periodic: all elements of water harvesting system are cleaned and functional	Prior to hand over	Project Management Unit	MISE
Use and Maintenance of Self Composting Toilets	<ul style="list-style-type: none"> Training materials to be developed in local language to cover the key areas of maintenance – lack of available bulking agent, lid not being kept closed, chamber not being emptied according to designers schedule. Detailed training on the need for and correct method of SCT maintenance should be given to both men and women. Information posters should be installed in communities to ensure ongoing reminders of correct use and maintenance of SCTs. 	One off: training materials produced, training undertaken and posters in place	Prior to hand over of SCT	Project Management Unit	MISE

Site Selection for Water Security Interventions

Some guiding principles for the site selection for these activities are:

- Sites will be primarily selected based on evidence-based recommendations presented to the national and island governments by international experts.
- Any toilets should be sited so that they can be used safely by all members of the local community, including children, older people and pregnant women and so that eliminate threats to security of users especially women and girls, day and night.
- Sites should be selected to ensure fair and equitable access for all members of the community especially women.
- Ensure that any toilets have hand washing facilities.
- Women must be consulted on the design and location of water security interventions.

Another important thing to consider is contamination risk. *Table 3* below provides some similar ‘rules of thumb’ for minimising the risk of water contamination.

1 *Table 3: Minimum distances from sources of pollution⁷⁸*

Feature	Minimum distance from water source
Community-level solid waste dump	100m
Storage (or dumps) of petroleum, fertilisers or pesticides	100m
Places where animals are slaughtered	50m
Cemetery	50m
Toilets / latrines (open pit)	30m
Household waste dump	30m
Animal pens	30m
Laundry place	20m
Large trees with extensive root system	20m
Dwellings	10m

Technical Assistance and Policy Development

Policy, Regulations and Plan Development

Any development of policies or programs will follow this ESMP and the Gender Action Plan to ensure that all affected parties are engaged in the process of development and that broader impacts on gender, environment, etc. are considered.

⁷⁸ Environmental assessment and risk screening for rural water supply. Consortium for Sustainable Water, Sanitation & Hygiene in Fragile Contexts, 2015.

Gender Mainstreaming

The design of the Project requires equal and active participation, however, there is a risk that gender may not be mainstreamed into long term water resources management plans developed under this project.

In order to ensure these activities fully incorporates the AF Gender Policy, the PMU Gender Officer supported by an International gender specialist should undertake a gender-sensitive review of any policy frameworks and plans. The specialist should refer to experiences and tools from previous Climate Change Adaptation and Disaster Risk Management projects in the Pacific Islands, e.g. PACC, GCCA, IWRM, Pacific Gender & Climate Change Toolkit as well as the Adaptation Fund's Gender Policy and Action Plan and the associated guidelines for this plan. The findings from the review will be used to inform and strengthen the final outputs of these activities.

Consultants

Consultants will be required for the technical water assessment and design elements of the Project. They may also be required for activities which depend on behavioural change strategies such as the sanitation activities. TORs for any consultants will require the consultant to comply with the ESMP and the AF safeguards and gender policies.

For all technical assistance consultants this ESMP will be included in the TOR and final contract.

Capacity Building and Materials Development

Awareness materials will be developed and awareness raising activities will be undertaken under the Project aimed at the general public for raising awareness on climate change. Gender balance shall be considered during the activities to ensure that women are equally represented.

ESMP Implementation

Integration of ESMP into Project Management

This ESMP will be included in all bid document packages.

The safeguards requirements of this ESMP will be referenced in appropriate parts of the technical specification, Contractors contract and any TORs for supervision or issued under the Project. The IE will be required to review all bid documents prior to approval.

Prior to project implementation, the PMU will be required to attend a safeguards workshop with the IE Safeguards Specialist to ensure that all parties understand their obligations under the requirements of the ESMP and the safeguard policy of the Adaptation Fund.

Roles and Responsibilities

Details of the roles assigned to various agencies / organizations are summarised below –

Steering Committee

The Project Steering Committee is formed of representatives from the IE (SPREP) and the EE (MISE) as well as other government ministries and other key project partners. The PSC will convene once a year to review annual work plans and budgets and make decisions about resource allocations consistent with performance and priorities agreed to by the group as a whole. The Ministry of Internal Affairs will be represented on the Project Steering Committee and be expected to report on any issues or feedback from

the outer islands concerning this project through this mechanism and directly to the Project Management Unit.

Implementing Entity

SPREP is the accredited IE for this project and provides a Country Programme Officer and high-level project management support to the Executing Entity. As the accredited IE, SPREP is fully responsible (legally and financially) for the implementation of this project including the safeguards standards required by the Adaptation Fund. The IE:

- Acts as a focal point for communications with AF on project related matters;
- Ensures compliance with WB funding requirements, including safeguard compliance;
- Provide inputs into project scope and design;
- Provide additional technical capacity to PMU where required
- Updating the ESMP as necessary to reflect changes in the designs;

Project Management Unit under MISE

The Project Management Unit staff may include a: Project Manager, Technical Coordinator, Project Officer and Finance Manager - who will assist the Manager in the daily management and implementation of the Project and activities. A Communication & Outreach Manager, Gender Officer and Monitoring & Evaluation Officer will also be appointed to undertake the implementation of respective activities. Other staff may also be involved or appointed on a part-time or casual basis as the Project develops. Additional positions including a Gender Officer, Monitoring & Evaluation Officer and Communication & Outreach Manager will also be appointed to assist the Project Manager and Technical Coordinator in implementing key activities.

Outer Island Liaison Officers will be recruited to assist the Project team in implementing the activities on-ground. The Liaison Officers will be responsible for assisting in logistical arrangements, and engaging with the Outer Island Councils, decision-making bodies and other island groups to ensure information from the Project is communicated directly to the Islands.

The PMU will have the responsibility to oversee the implementation of the ESMP and their responsibilities include, but are not limited to:

- Acts on behalf of the Project Board and works closely with all contracted parties to ensure that project objectives are delivered in a compliant manner consistent with national and AF safeguard requirements;
- Monitor and evaluate project activities and outputs and report the findings to the IE by periodic progress reports. These reports will include all aspects of safeguards compliance of the Project including the results of scheduled monitoring, and instances of non-compliance, any environmental incidents and any GRM submissions/responses.
- Monitors and manages all complaints/incidents reported to the Project GRM;
- Updating the ESMP as necessary to reflect project change;
- Facilitate meaningful consultations with stakeholders and communities to enable them to provide meaningful input and direction into the Project;
- Publicly discloses any project information and reports including this ESMP;
- Receive and review monthly reports from Outer Island Liaison Officers and share reports.

The PMU National Project Coordinator will be responsible for overall project coordination and technical guidance and will support the procurement of various packages and studies. Technical staff will be recruited as necessary to support the implementation of technical advisory components.

Technical Coordinator

Due to the technical specifications of the proposed project, a Technical Coordinator will be recruited to support the Project Manager through the oversight and management of the activities under Component 3, 4 and 5 i.e. developing the evidence-base for decisions on water harvesting and supply, constructing the infrastructure required and providing input into the sanitation pilot programme. This will also include overseeing the contracts for construction supervisors, foremen and other consultancies as required. The Technical Coordinator will work closely with the Implementing Partners to ensure coordination and integration across the activities. The Technical Coordinator will be responsible for managing and supervising the construction supervisors, foremen and other associated roles with the implementation of interventions.

It is the Technical Coordinators responsibility to:

- Comply with this ESMP in the development of the detailed design, procurement bid documents and other advice to the PMU;
- Avoid or minimise environmental and social impacts by design;
- Undertake meaningful consultation with stakeholders to inform the design process.
- Coordinate the construction supervisors and foremen to undertake construction monitoring as required in this ESMP.

Contractors

This section is applicable to any party undertaking physical building works under any project activity. It is the Contractors responsibility to:

- Carry out the Project activities in accordance with the ESMP;
- Not to undertake any works or changes to works unless first approved in an updated ESMP;
- Participate in community consultations as required in this ESMP in coordination with the PMU;
- Advise the Technical Coordinator of any changes to works or methods that are outside the scope of the ESMP for updating;
- Post all notifications specified in this ESMP at the site entrance;
- Report all environmental and OHS incidents to the Technical Coordinator for any action;
- Provide reports of all safeguard monitoring, incidents, complaints and actions to the Technical Coordinator;
- Maintain a database of all complaints, incidents or grievances received. Any issues which cannot be dealt with immediately should be reported to the Project Manager.

Technical Advisors / Consultants

All technical advisors are required to comply with the ESMP and Safeguards Policy more broadly in terms of the work methodologies and outputs. They will be required to work with the PMU to ensure adequate citizen and stakeholder engagement in their work programme.

ESMP Budget

The following is an approximate budget for implementing the ESMP by the PMU, based on the tables in Section 6.2 and the responsibilities detailed in Section 7.2.

Budget Item	Detail	Timeframe	Cost Estimate (USD)
Stakeholder consultations	For each project island: Catering, venue hire, media, materials, travel and accommodation, translation and interpretation services, etc.	As per SECP repeated for each project island	40,000
ESMP Training for Project Teams	Travel and accommodation to Kiribati, catering, venue hire	On finalization of ESMP prior to commencement of works	15,000
Disclosure of safeguards instruments	Translation, report production, distribution	Prior to start of works	4,000
GRM related costs	Personnel, communication, transportation, office support costs	All of project implementation	5,000
Monitoring and Reporting	Non-staff costs: logistics and report production	All of project implementation	5,000
	Estimated Total Budget		69,000

ESMP Training

The PMU and project teams will require training to ensure effective implementation and oversight of the ESMP.

Areas recommended for PMU training include the following –

- Adaptation Fund safeguard policies, in particular those triggered and relevant to the Project;
- Roles and responsibilities of different key agencies in safeguards implementation;
- How to effectively integrate the ESMP into project management, implementation, monitoring and reporting;
- Management of the GRM;
- How to facilitate meaningful community consultations;
- Integration of the ESMP and safeguard specific clauses into the contract and bid documentation.

On-going support will be provided by the IE for the duration of the Project.

Annex H. Risk Management Plan⁷⁹

Project: Enhancing the resilience of the outer islands of Kiribati										Project Number:		Country: Republic of Kiribati		Sector(s):	
Date of Development / Last Review: 13 November 2019		Date of Next Review: September 2020													
Program Manager: TBC															
Objectives:															
Risk Event - what could happen	Risk Source - what could cause the event to happen	Risk Impact - what would happen if the event occurs?	Has this risk occurred in this program?	Risk rating before any controls			Existing Controls (what's currently in place?)	Overall Control Effectiveness	Proposed Treatments (if no further treatment required or available, please explain why)	Person(s) Responsible for Implementing Treatments	Implementation Date for Proposed Treatments	Target rating when Proposed			Does this risk need to be escalated?
				Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)						Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)	
Institutional Risks															
Delay in recruiting appropriately skilled staff and continuity of staff	Lack of skilled professionals in the country	Project may be delayed in commencement due to lack of resources	No	Likely	Moderate	High	No existing controls, however recruitment processes follow Government of Kiribati guidelines	Partly effective	Additional advertisements in a number of different countries in both employment sites and industry associations. Also utilise advertising through LinkedIn and ask contacts to promote job through their networks.	Executing Agency	Depends on allowable commencement date of project team	Likely	Moderate	High	Yes
High turnover of staff members in project management unit may negatively impact on the delivery of project activities	Lack of resources to deliver role requirements; better job offers elsewhere	Reduced capacity of Project team. Loss of project knowledge; Delayed delivery on Project activities	No	Possible	Minor	Moderate	All project-related staff positions are recruited at rates outside of Government of Kiribati staff rates	Effective	Positions are recruited at rates as per Government of Kiribati project staffing guidelines; incentives e.g. training and development provided to personnel	Executing Agency	Ongoing	Possible	Moderate	Moderate	No
Lack of an enabling environment to enable the Project to work effectively on the outer islands	Constraints in the political environment and coordination at national and island level, and / or poor relationship building between the project and national and island level	Project delays; inability of the project to undertake evidence base and implement interventions	No	Likely	Major	High	GoK mechanisms for working in the outer islands i.e. Ministry of Internal Affairs are in place. There is no coordination / relationship mechanism for the project at this time	Partly effective	Project will work through the GoK and Outer Island mechanisms; community engagement and participation will be a priority	Executing Agency	Ongoing	Possible	Moderate	Moderate	No
Reputational risk for the Executing Agency and Implementing Agency	Poor implementation of project activities in the outer islands; lack of proper and effective community engagement; political agendas change	Project delays; loss of faith from the GoK and Outer Islands in the project; Project mentioned in Parliament	No	Possible	Moderate	Moderate	MISE is experienced in working on the Outer Islands and understands the internal systems, relationships at the national and outer island level are in place	Partly effective	Project will establish and maintain continual feedback processes between the outer islands and GoK; joint decision-making framework is being developed under the project; outer islands are to be involved / consulted in all aspects of the project	Project Management Unit	Ongoing	Possible	Minor	Moderate	No
Project is no longer supported at the Government level	New Government and/or change in Government priorities	Reduced support from Ministries and outer islands for the Project	No	Possible	Moderate	Moderate	The project currently has the support of the GoK and strong communication channels are in place between the relevant Ministries and Cabinet; the project is assisting the GoK to meet the KV20 vision	Effective	The project will ensure Cabinet is provided with regular updates on progress; the findings from the project (e.g. socio-economic benefit analysis) will provide core evidence of the importance of such projects in the outer islands	Project Executing Agency / Project Management Unit	Ongoing	Possible	Minor	Moderate	No
Implementation of project becomes challenging due to inputs from various sectors	Change in policies, increased interest in the project from sectors	Project implementation could be delayed or slowed whilst decisions are made	No	Possible	Moderate	Moderate	There are no current controls for this risk	Uneffective	Open communication pathways between the project and Ministries / Government provide regular updates. Project Steering Committee is established and provides an avenue for inputs from sectors and interested parties	Project Manager	Ongoing	Possible	Minor	Moderate	No
Inadequate monitoring and evaluation plans that fail to establish relevant baselines and data collection methodologies result in the program being unable to validate results in a manner that can demonstrate progress towards agreed outcome achievement.	Poor quality partner M&E systems; partner competency deficits prevent the timely establishment of relevant baselines	Project is unable to validate results in a manner that demonstrates progress against targets	No	Possible	Minor	Moderate	Systems are currently not in place for the project	Uneffective	M&E plan is developed as part of the project plan and will be reviewed upon implementation during the inception phase. Greater engagement between the IA and EA to build M&E capacity. Establishment of M&E Officer position within the Project Coordination Unit. Project is designed to include baseline and regular tracking and reporting.	Project Manager and M&E Officer	Ongoing	Possible	Minor	Moderate	No

⁷⁹ Risk Management Plan is available as an excel spreadsheet from the Implementing Agency

Project:		Enhancing the resilience of the outer islands of Kiribati										Project Number:		Country:			
Date of Development / Last Review:		13 November 2019										Date of Next Review:		September 2020		Republic of Kiribati	
Program Manager:		TBC										Sector/s:					
Objectives:																	
Risk Event - what could happen	Risk Source - what could cause the event to happen	Risk Impact - what would happen if the event occurs?	Has this risk occurred in this program?	Risk rating before any controls			Existing Controls (what's currently in place?)	Overall Control Effectiveness	Proposed Treatments (if no further treatment required or available, please explain why)	Person(s) Responsible for Implementing Treatments	Implementation Date for Proposed Treatments	Target rating when Proposed			Does this risk need to be escalated?		
				Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)						Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)			
Project Risks																	
Project roll-out in the outer islands is delayed	Government of Kiribati fails to agree on the target outer islands in a timely manner	Delays across all activities	No	Possible	Major	High	Cabinet will determine which of the three outer islands the project will be implemented across; the project design incorporates a 12-month scoping period to allow for delays and for the project to build the platform needed for effective implementation	Partly effective	The GoK will determine the islands, however the Project will support the GoK in the decision-making through provision of information including possible selection criteria	Executing Agency	Ongoing	Possible	Major	High	Yes		
	A natural disaster or inclement weather	Potential delays to the whole project depending on the impact of the disaster and location; Delays across activities due to weather conditions delaying transport or ability to undertake fieldwork	No	Possible	Moderate	Moderate	GoK has an early warning system in place however there are no controls in place for the project if this leads to delays	Uneffective	The project will work closely with KMS to monitor any events and provide mitigation actions at the time	Project Management Unit	Ongoing	Possible	Moderate	Moderate	No		
Failure to engage effectively with stakeholders and achieve implementation of activities	The activities in the outer islands are developed and implemented without appropriate input from relevant stakeholders	Lack of stakeholder 'buy-in' into the evidence-based findings and water and sanitation interventions leading to ineffective implementation of the activities, procedures etc.	No	Likely	Major	High	The project has consulted with three outer island stakeholders during the planning process. Further stakeholder consultations are also built into the scoping phase under implementation. Furthermore, a Community Engagement Plan will be developed for each island outlining how stakeholders are to be continually engaged throughout the project. Island communities will be directly engaged in the decision-making processes for water and sanitation interventions. Islands will be represented in the decision-making process through their Island Councils via the governance arrangements. The outer island communities will also be trained and mentored in various aspects of the project	Partially effective	In addition to existing controls, strengthened coordination mechanisms and engagement as outlined in the project logframe and as per the existing controls	Project Management Unit	Ongoing	Possible	Major	High	No		
Endorsement of interventions in outer islands may take longer than expected	The island and national political environment does not enable the turnaround time for approval of interventions or any necessary policies and procedures	Interventions are not agreed to with communities; Policies and procedures are not endorsed, delay in implementation of activities	No	Possible	Major	High	There are no current controls for the project	Uneffective	The project is designed to ensure all sectors of the community are engaged in consultations and decision-making as per the cultural appropriateness through the Community Engagement Plans, Gender Action Plan, ESM Plan and in the project activities work programmes. The national Government will be kept informed of progress via regular communications from the Executing Agency	Project Management Unit	Ongoing	Unlikely	Moderate	Moderate	No		
Lack of use of water and sanitation facilities installed by the Project	Lack of stakeholder engagement; cultural considerations; utilisation of the evidence-base to make decisions on the options; inappropriate infrastructure	Poor implementation and ineffective use of the installations	No	Possible	Major	High	The project plan is built upon utilising the evidence-base (Component 1) to ensure the Government and outer islands have clearly identified options for infrastructure. Furthermore, outer island communities will be engaged in decisions and input into the options to ensure the appropriateness of the options in the island / village context	Effective	Continued engagement with the communities and ensure inputs are incorporated into the options and design of the options	Project Management Unit	Ongoing	Possible	Moderate	Moderate	No		
Failure to implement the ESM Plan	Lack of understanding of the importance of the ESM Plan and how to implement the mitigation actions	Poor implementation and failure to effectively meet the project objectives	No	Possible	Major	High	ESM Plan has been developed and budgeted for in the project plan. Training will be put in place for the Executing Agency and PMU	Effective	Ensure training and on-going guidance is provided to the PMU to ensure full implementation of the Plan	Implementing Agency and Project Management Unit	Ongoing	Unlikely	Moderate	Moderate	No		
Training is not customised for outer island audiences	"Off the shelf" training courses do not address cultural issues and practicality of systems and available services in the outer islands, so are inappropriate and do not achieve desired project outcomes	Reputational damage to the project; wasted investment in trainings; outer island people have time away from other duties without any practical advantage or value	No	Possible	Moderate	Moderate	The project has no current controls in place	Uneffective	The project will ensure any training is appropriately framed for the audience. Training and mentoring will be ongoing throughout the life-of-the project and not based on one-offs. The training will also focus on train-the-trainer to ensure sustainability	Project Management Unit	Ongoing	Unlikely	Minor	Low	No		

Risk Event - what could happen	Risk Source - what could cause the event to happen	Risk Impact - what would happen if the event occurs?	Has this risk occurred in this program?	Risk rating before any controls			Existing Controls (what's currently in place?)	Overall Control Effectiveness	Proposed Treatments (If no further treatment required or available, please explain why)	Person(s) Responsible for Implementing Treatment/s	Implementation Date for Proposed Treatment/s	Target rating when Proposed			Does this risk need to be escalated?
				Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)						Likelihood (refer to matrix)	Consequence (refer to matrix)	Risk Rating (refer to matrix)	
Financial Risks															
Funds misappropriation, corrupted procurement, contract and human resource management processes	Poor contract determination processes; poor financial management systems and processes	Reputational damage to partner and the project. Resources applied to achieving project objectives reduced. Undermining in AF confidence in working with delivery partner and country partner. Possible ineligible expenses	No	Unlikely	Major	Moderate	Engagement with known partners with good reputation; Government of Kiribati financial management and procurement systems and controls are in place confirming appropriate management capacities and controls; budgets and program deliverables designed to ensure effective procurement; budget categories clearly defined; proactive monitoring of programs, budgets and acquittals.	Very effective	No further treatment required; current arrangements appropriate to feasibility of risk management in current context	Project Manager / Finance Manager	Ongoing	Unlikely	Major	Moderate	No
Financial audits are not provided in a timely manner or show discrepancies	No internal audit controls in place	A lack of appropriate financial management reduces reputation of the project and Executing Agency	No	Unlikely	Moderate	Moderate	Government of Kiribati audit processes are in place	Very effective	No further treatment required; current arrangements appropriate to feasibility of risk management in current context	Project Manager / Finance Manager	Ongoing	Unlikely	Moderate	Moderate	No
Complaints on inappropriate procurement of work packages	No procurement process in place or implemented	Reputational risk; poor delivery of services	No	Unlikely	Moderate	Moderate	Government of Kiribati procurement processes are in place	Very effective	No further treatment required; current arrangements appropriate to feasibility of risk management in current context	Project Manager / Finance Manager	Ongoing	Unlikely	Moderate	Moderate	No
Project is delayed due to delays in contracts	Contractual negotiations are slow	Project implementation delays	No	Likely	Moderate	High	No existing controls are currently in place	Uneffective	SPREP and the Government of Kiribati are experienced in contract administration and will work closely to ensure contractual negotiations are undertaken in a timely manner.	Implementing Agency & Project Executing Agency	Ongoing	Unlikely	Minor	Low	No
Activities are under-budgeted or costs increase (e.g. transportation costs)	Activities may not be able to commence or be undertaken fully	The project does not successfully meet its objectives	No	Unlikely	Major	Moderate	The project budget has been planned out in detail and the scale and scope of the project has been reduced during the development phase. Budgets have been developed to allow flexibility within the activities and the funds allocation	Effective	In addition to the existing controls, the IA and EA will work closely together during the scoping phase to realign the budgets against activities as more detailed information comes through. Ongoing discussions throughout the life of the project will also occur	Implementing Agency & Project Executing Agency / Project Management Unit	Ongoing	Unlikely	Moderate	Moderate	No

Annex I. Key Evaluation Questions

Menu of Indicative Baseline/Situation Analysis Questions
<p>How are Government of Kiribati and Outer Island councils currently monitoring and managing water resources in targeted OIs?</p> <ul style="list-style-type: none"> • How are Government of Kiribati and local communities currently using evidence in their management of water resources and sanitation on outer islands? • What are the current governance arrangements? • How are decisions currently made by Government of Kiribati, Outer Island Councils and villages? • What are the coordination mechanisms in place among responsible ministries? What is working well and less well?
<p>What are the existing practices in different OI contexts and among different demographic and GSI groups and categories?</p> <ul style="list-style-type: none"> • For water protection and use • To ensure equity of access to water • For use of sanitation facilities • To ensure equity of access to sanitation
<p>What are the current knowledge levels of Government of Kiribati, Outer Island water technicians and other relevant community members related to;</p> <ul style="list-style-type: none"> • Water quality monitoring? • The management of water and sanitation assets • Drought response management • Ensuring water safety

Menu of Indicative Real time Analysis Questions
How effective are the processes for sharing results of scientific assessments with key stakeholders? (OI decision makers, communities, Government of Kiribati)
How effective are the community consultation and feedback processes? What worked well and less well for different groups?
What is working well and less well in activities for changing targeted behaviours? Related to ensuring safe, potable water supplies? Related to sanitation?
What is working well and less well in the early interventions/quick win solutions to secure village water safety from current infrastructure? How effective are the quick win solutions for providing drought-vulnerable villages with access to rainwater harvesting? How effective are the quick-win solutions?
How well is the coordinated water quality monitoring approach established by the project and involving MHMS, MELAD and MISE working? What is working well and less well? What changes are needed to improve effectiveness?
How well is the centralised data storage system for water quality monitoring working? What is working well and less well? What changes are required to improve usability?
How successful are the piloted sanitation facilities installed by the project? (see specific questions about use, operation and maintenance, benefits and changes in water quality of freshwater lenses in main proposal text)
For sectors of the community not reached through UNICEF/MWYSA-led WASH: How well are the mechanisms working for reaching these members of the community? What is working well and less well? What could be improved?

Menu of Indicative Real time Analysis Questions
How consistent is the messaging on WASH promoted by the alliance partners (UNICEF/MYWYSA and the project)? How could the consistency be improved?
What worked well and less well in the development of the drought response, water safety and asset management plans In the development of these plans, how useful were the guidelines in the Community Engagement Plans and the Gender Action Plan? What worked well and less well in translation of the plans into appropriate formats, in and training on the Plans for communities and Government of Kiribati, and on linkages to the WASH program for the water safety plan?
How well are project approaches working for increasing capability of KMS to use historic, current and real-time weather and climate information to determine trends and analyse rainfall, and determine drought indicators and triggers
How well are project approaches working for increasing MISE and island water technician capability in assessing groundwater resources status and drought risk status using salinity monitoring?
How well are project approaches working for addressing skills shortages in the water and sanitation sector?
How well is the Gender Action Plan being implemented? <ul style="list-style-type: none"> • What is working well and less well? • What is going well and less well with implementation of the gender and social inclusion strategies and tools identified Gender Action Plan? • How effectively are project activities (consultations, trainings etc.) facilitating the participation of women, youth ad vulnerable groups? • How well are decisions related to water resource and sanitation interventions reflecting the perspectives of women, youth and vulnerable groups?
How useful was the gender inclusion training provided to key Government of Kiribati ministries (MELAD, MHMS, MISE) and other stakeholders?
How well are the Outer Island Liaison officers performing in their roles? What is going well and less well? How effectively are they engaging with women, youth and vulnerable groups? How could their roles and responsibilities be adjusted to improve effectiveness and efficiency? What further training and support do they require to improve their effectiveness and efficiency?
How appropriate and useful are the knowledge strategies and objectives and the knowledge products? How effective are the delivery mechanisms and channels? How could these be improved?
How well is the ESMP being implemented? What is working well and less well? <ul style="list-style-type: none"> • How useful was the training provided to PMU and outer island community members on the Environmental and Social Management Plan (ESMP)? • How effectively is the project handling grievances reported through the Grievance Redress Mechanism?

Menu of Indicative Questions for End of program evaluation of outcomes and readiness for scale-up
What key lessons can be been drawn from the implementation of water harvesting and supply interventions in the 3 outer islands to inform scaling up? <ul style="list-style-type: none"> • How appropriate and useful were the village and island selection criteria? • How well did the engineering designs reflect community needs, cultural sensitivity, gender considerations, Government of Kiribati standards and ESS? • Were the training and resources provided by the project sufficient to support ongoing operation and maintenance?
Is the project ready to scale up? <ul style="list-style-type: none"> • How well have sustainability mechanisms been incorporated into the design of infrastructure? • How well has the project supported and/or strengthened existing governance structures? • How effective are the measures advocated/promoted by the project to protect ground water resources?

<ul style="list-style-type: none"> • How effective were the frameworks established for monitoring and responding adverse events (drought, water supply contamination)
To what extent has the project responded to the priorities identified through Kiribati's water harvesting and storage consultations?
How relevant and appropriate were the success factors used to guide the design of the project? Were there gaps? Based on the experience of the project, how should the success factors be reframed to help guide the scaling-up to the remaining OIs in the Gilbert Group?
How effective are the long-term options for water harvesting and supply implemented by the project likely to be?
What key lessons can be drawn from the development and implementation of the drought management, water safety and asset management plans in the 3 outer islands to inform scaling up?
What key lessons can be drawn from project approaches for 1) increasing weather data analysis and use and groundwater salinity data monitoring and use capability of KMS and MISE and 2) addressing skills shortages in the water and sanitation sector to inform scaling up?
How have MELAD, MHMS, and MISE and other stakeholders benefitted from the gender inclusion training? What difference has it made to their work in climate change adaptation?
What are the strengths and weaknesses of data management system? What enhancements and additional functionalities will it need to support scaling up?
What is the likely return on investment on the Kiribati Outer Island Water Security Project? (A project-level cost effectiveness analysis could be used as part of the readiness assessment to support/justify scaling up).

Annex J. Project Results Framework

Objective	Indicators
Gilberts outer island households have equitable, sustainable access to potable water and sanitation under future climate conditions	<p>Baseline information to enable comparison of reasonable access, equity and sustainability of current with new arrangements that consider under future climate conditions will be gathered during the scoping phase of the project and indicators for assessing achievement of the overall objective of the project will be developed. Kiribati's 2015 population and household census⁸⁰ indicates:</p> <ul style="list-style-type: none"> 90 to 100 % of households (HH) in the outer islands identified in Table 3 have access to drinking water from piped, ground water or rainwater sources with the main source being ground water (53 to 92 % of HH access ground water for drinking). 88-97 % of HH reported owning no water tanks. The extent to which HH have intermittent (predictable or unpredictable) rather than continuous access to potable water is unknown. Reasonable access to water is defined by WHO⁸¹ as: the availability of 20 litres per capita per day at a distance of no more than 1,000 meters. While it is known that water supplies in South Tarawa fall short of the recommended amount, less is known about "reasonable access" on outer islands. 17 – 59% of HH are practicing open defecation (using beach, bush or sea). Of the 41 – 83% who have access to a flush toilet, water latrine or composting toilet, 7 to 26% of HH report sharing these.

Outcomes End-of-program (EOP) and intermediate (IO)	Progress Markers
EOP01: Government of Kiribati and OI communities are mainstreaming the use of evidence to inform policy and make decisions to enhance resilience under future climate	Baseline information and progress markers to be determined during the inception phase
EOP02: Government of Kiribati and Island councils make joint decisions on water facilities based on evidence	
EOP03: Practices of Government of Kiribati and OI communities are consistent with the protection and sustainable and equitable use of water	
EOP04: Village-led, culturally appropriate sanitation facilities are in use in targeted sites	
IO1: Government of Kiribati and OI communities are aware of available evidence, options and resources and using these in decision-making and planning	

⁸⁰ Kiribati will carry out a new population and housing census in 2020, providing updates on these statistics.

⁸¹ https://www.who.int/water_sanitation_health/monitoring/jmp2000.pdf

IO2: Government of Kiribati and OI communities are motivated and given opportunities to mainstream the evidence options and resources into decision-making and planning	
IO3: Government of Kiribati and Island councils have in place enhanced governance arrangements to facilitate accountability and decision-making	
IO4: Government of Kiribati and Island Councils have in place an enhanced knowledge management system to enable timely access to data and information	
IO5: Government of Kiribati and OI communities have mechanisms for achieving behaviour change in water, sanitation and hygiene	
IO6: Government of Kiribati and OI Communities are working together to develop and implement culturally and technically appropriate sanitation solutions in trial sites	

Outputs	Key Milestones and Performance Indicators	Sources of verification
COMPONENT 1: Establishing the evidence base for water and sanitation investigations at the island and village level		
Output 1.1: Sea level rise and coastal hazard assessments developed to inform impacts on groundwater supply, infrastructure design and planning	<p>Completion of dynamic downscaling to island level of expected future changes in tides, sea-level variability and sea level rise projections</p> <p>Completion of erosion hazard assessments and surveys to collect high res topographic and bathymetric data appropriate to island and village scale</p> <p>Calculations of current and future inundation and erosion hazards at sub-island/village scale in three selected islands</p> <p>Groundwater hydrological models for three islands</p> <p>Deployment of ocean buoys and number of KMS staff trained by the project on weather and climate service delivery (disaggregated by GSI⁸² categories and training type e.g events, on the job training, mentoring etc.)⁸³</p>	Reports, assessments, briefing notes
Output 1.2: Assessment of climate change impacts on future water security	<p>Review of existing knowledge on the historical and future variability and trends for key climate variables</p> <p>Outer island-specific methods/tools for drought assessment</p> <p>Island level climate change scenario data sets</p>	Reports, guidelines for tools and assessments, data set documentation

⁸² Gender and Social Inclusion

⁸³ Ibid

Outputs	Key Milestones and Performance Indicators	Sources of verification
	<p>Number of KMS staff trained by the project (disaggregated by GSI⁸⁴ categories and training type: training event, on the job, mentoring etc.)⁸⁵</p> <p>Evaluation (feedback) by KMS staff on climate change scenario capacity development activities (including mentoring) and on the usability of climate change scenario data sets to report on Adaptation Fund Indicator 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased</p> <p>Rainwater harvesting guidelines</p> <p>Island level-rapid assessment of climate change impacts on future water security</p>	
<p>Output 1.3: Hydrological measurement, monitoring and risk assessment developed for outer islands</p>	<p>Data review to inform development of island level hydrological models</p> <p>Hydrological measurement and monitoring program</p> <p>Number of MISE staff trained by the project (disaggregated by GSI categories and training type e.g., events, on the job, mentoring etc.)</p> <p>Evaluation (feedback) by MISE staff on the usability of the hydrological monitoring program and on the effectiveness of capacity development efforts (including mentoring) to report on Adaptation Fund Indicator 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased.</p> <p>Methodology for determining the extent of available water resources at island level</p>	<p>Reports, hydrological monitoring program guidelines, Island water resource assessment guidance</p>
<p>Output 1.4: Coordinated and low cost water quality monitoring system implemented in the outer islands</p>	<p>Creation of Terms of Reference including purpose, objectives, roles and responsibilities, action plan and milestones, for an inter-ministerial project to establish baselines and longer term water quality monitoring and a centralised on-line information and data repository</p> <p>Rapid assessment of existing water quality and quantity data, data collection and coordination mechanisms</p> <p>Coordinated water quality and quantity monitoring framework</p> <p>Deployment of e coli Polymerase Chain Reaction (PCR) kits to three outer islands</p>	<p>Mission and training reports, report on strengths and weaknesses of capacity-building effort, online water quality data repository launch announcement</p>

⁸⁴ Gender and social inclusion

⁸⁵ Aggregate with data from all other training to report as Adaptation Fund indicator 2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events.

Outputs	Key Milestones and Performance Indicators	Sources of verification
	<p>Number of water island technician, MISE and other ministry staff trained by the project (disaggregated by GSI and as training type e.g., events, on the job, mentoring etc.)⁸⁶</p> <p>Evaluation (feedback) by trained staff on the usability of the PCR kits and on the effectiveness of the training and mentoring to report on Adaptation Fund Indicator 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased</p> <p>Completion of water quality sampling and testing on three outer islands using PCR kit with associated survey of physical conditions of sampling sites, ground water travel time assessments</p> <p>Installation of remote monitoring loggers in identified contaminated high-risk wells</p> <p>Establishment of on-line repository for Kiribati's water quality data</p>	
Output 1.5: Collation of the evidence and analysis of options	<p>Completion of island-level analyses involving participation of MISE, and island water technicians identifying options for improving access to safe, equitable and reliable water</p> <p>Completion of feasibility study reports on available options for each island</p>	Reports
Output 1.6: Strengthened weather and climate services	<p>Completion of upgrading of selected datalogger rain gauges to add telemetry</p> <p>Visual weather software provided to KMS</p> <p>Completion of deployment of wave bouys</p> <p>Completion of KMS training on use of NIWA drought risk visualisation toolkit</p> <p>Number of KMS staff trained by the project on weather and climate service delivery (disaggregated by GSI⁸⁷ categories and training type e.g, events, on the job training, mentoring etc.)⁸⁸</p> <p>Evaluation (feedback) by trained staff on the usability of the tools/systems/kits and on the effectiveness of the training and mentoring to report on Adaptation Fund Indicator 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased</p>	Mission and training reports, Report on strengths and weaknesses of capacity-building efforts
COMPONENT 2: Water harvesting and supply systems in the outer islands		
Output 2.1: Assessment of current water and sanitation infrastructure	Completion of full physical surveys on 3 outer islands to map wells, infiltration galleries and associated pipes and pumps, desalination facilities, rainwater harvesting capacity	Reports

⁸⁶ Aggregate with data from all other training to report as Adaptation Fund indicator 2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events.

⁸⁷ Gender and Social Inclusion

⁸⁸ Ibid

Outputs	Key Milestones and Performance Indicators	Sources of verification
	(conditions and potential), with recommendations for improving current water infrastructure	
Output 2.2: Early water safety interventions e.g. covering of wells and installation of pumps in villages identified under the assessment	<p>Completion of recommended (refer 2.1 above) improvements to current water infrastructure</p> <p>Completion of installation of rainwater harvesting systems in drought vulnerable villages</p> <p>Number of infrastructure improvements by type, island and village supported by the project</p> <p>Number of people (disaggregated by GSI categories) benefitting from early interventions installed by the project</p>	Reports
Output 2.3: Selected villages have water harvesting and supply facilities installed in line with climate change projections	<p>The full work program and performance indicators for this component will be developed in the latter phases of the project.</p> <p>A socioeconomic benefit analysis will be used to assess impact of the interventions delivered by the project and will provide a variety of metrics including</p> <ul style="list-style-type: none"> • Return on investment • Number of people (disaggregated by GSI categories) benefitting (directly and indirectly) from interventions implemented by the project⁸⁹ • Adaptation Fund indicator 5.1: No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change 	Reports
COMPONENT 3: Piloting sanitation approaches in the outer islands		
Output 3.1: Analysis of factors influencing behaviour, attitude, constraints and incentives towards sanitation in the outer islands	<p>Completion of sociological island-level surveys on existing sanitation practices, past sanitation interventions, association of sanitation with livelihoods, cultural norms, water and health, and roles and responsibilities of individuals, households, island organisations, government etc in sanitation interventions and identification of behavioural and broader contextual factors contributing to the persistence of poor sanitation practices</p> <p>Communication of key findings back to island communities</p>	Report, briefing notes, log of communications to communities
Output 3.2: Village designed sanitation options developed	<p>Completion of sanitation best practice review</p> <p>Completion of a sanitation options menu</p> <p>Completion of installation of solutions based on the menu. Emerging outcomes will be identified through monitoring visits and possibly a real time evaluative study. Monitoring will focus on:</p> <ul style="list-style-type: none"> • Extent to which facilities have prompted behaviour change related to use 	Report, briefing notes, monitoring visit reports, real time study reports

⁸⁹ This will include the number of people benefitting from early interventions (see above), GoK training (see above and previous footnotes), training focused on outer island communities (see below) and WASH programs (see below).

Outputs	Key Milestones and Performance Indicators	Sources of verification
	<ul style="list-style-type: none"> • Operation and maintenance • Roles and responsibility • Self-reported benefits of the new facilities • Monitoring of changes in contamination of freshwater lenses 	
Output 3.3: WASH programme delivered across all community groups in the outer islands	Establishment of collaborative agreements and plans for strategic partnerships with UNICEF, MWYSA and other organisations or networks to deliver island-level WASH programs Number of people (disaggregated by GSI categories) benefitting from WASH (led by strategic partners including UNICEF, MYWSA and others to be identified) programs to which the project is contributing ⁹⁰	MOUs, implementation plans, reports
C4: Strengthening coordination mechanisms for water resource management at Government, Island and Village level		
Output 4.1: Coordinated water and sanitation-decision-making model for GoK and outer islands	Completion of conceptual model of water and sanitation decision-making based on a structured review of experiences in water and sanitation in Kiribati to map formal and informal governance, social and cultural norms and identify what has worked well less well and why. Completion of design and testing of gaming exercise based on the conceptual model of water and sanitation decision-making Completion of decision-making framework based on gaming exercises Completion of scenario-planning activities with GoK and other key stakeholders Completion of localisation of the Water Needs Index methodology to the Kribati context Completion of communication and training materials on application of the decision-making framework Completion of communication and training materials on application of the Water Needs Index tool Number of Government of Kiribati staff (disaggregated by GSI categories) trained by the project on application of: the decision-making framework; the water needs index ⁹¹ Evaluation (feedback) by trained staff (disaggregated by GSI categories) on the usability of the framework and on the effectiveness of the training to report on Adaptation Fund	Reports, guidance notes, communication products

⁹⁰ Aggregate into indicator on total number people (disaggregated by GSI categories) benefitting (directly and indirectly) from interventions implemented by the project

⁹¹ Aggregate with data from all other training to report as Adaptation Fund indicator 2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events.

Outputs	Key Milestones and Performance Indicators	Sources of verification
	<p>Indicator 2.1.2: Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased</p> <p>Emerging implementation issues and outcomes related to the decision-making framework will be identified through monitoring visits and possibly, a real time evaluative study.</p>	
<p>Output 4.2: Drought Response Plans developed and implemented</p> <p>Output 4.3: Water Safety Plans developed and implemented</p> <p>Output 4.4: Asset Management Plans developed and implemented</p>	<p>Completion of reviews on each outer island assessing effectiveness of current drought response plans and lessons learned through their implementation</p> <p>Completion of stakeholder consultations to review, improve and validate draft drought response plans</p> <p>Number of people (disaggregated by GSI and other categories as appropriate, e.g. community members, local government etc) trained in implementation of drought response plans⁹²</p> <p>Completion of reviews on each outer island assessing current water safety measures and compliance</p> <p>Completion of stakeholder consultations to review, improve and validate draft water safety plans</p> <p>Number of people (disaggregated by GSI and other categories as appropriate) trained in water safety⁹³</p> <p>Number of people (disaggregated GSI and other categories as appropriate) involved in development of implementation planning to operationalise their water safety plan⁹⁴</p> <p>Evaluation (feedback) by outer island community members on the value and effectiveness of the water safety training</p> <p>Completion of reviews on each outer island assessing current asset management</p> <p>Completion by MISE of asset register on each island</p> <p>Completion of new and updating of existing island-level asset management plans</p>	<p>Review reports, stakeholder consultation reports,</p> <p>Approved drought response, water safety and asset management plans</p> <p>Communication materials for drought response, water safety and asset management plans</p>

⁹² Aggregate into indicator on total number people (disaggregated by sex and other GESI categories) benefitting (directly and indirectly) from interventions implemented by the project

⁹³ Aggregate into indicator on total number people (disaggregated by sex and other GESI categories) benefitting (directly and indirectly) from interventions implemented by the project






⁹⁴ Aggregate into indicator on total number people (disaggregated by sex and other GESI categories) benefitting (directly and indirectly) from interventions implemented by the project

Outputs	Key Milestones and Performance Indicators	Sources of verification
	<p>Completion of provision of tools and equipment required for water and sanitation asset management</p> <p>Evaluation by participants (island water technicians, other community members etc.) of training on asset management including tool and equipment use⁹⁵</p> <p>Completion of communication materials on water safety, drought response and asset management plans in formats appropriate for community level use</p>	
C5: Facilitating the sustainability of project outcomes in the outer islands and at the national level (cross cutting)		
Output 5.1: Gender and Social Inclusion	<p>Completion of recruitment of Gender Officer</p> <p>Updates to Gender and Social Inclusion Action Plan reflect contextual differences between outer islands</p>	<p>Gender officer workplan, GSI Action plan versions, engagement plans</p>
Output 5.2: Outer Island engagement and liaison	<p>Completion of establishing relationship with outer island networks</p> <p>Completion of outer island engagement plans</p>	<p>Executed contracts or workplans, island specific engagement plans</p>
Output 5.3: Knowledge management, communication and outreach	<p>Completion of recruitment of Knowledge Management and Outreach Manager</p> <p>Completion of project-level knowledge management strategy</p> <p>Number of practical information products made by the project (by type and intended audience)</p> <p>Number of public communications of results and information made by the project (by type and intended audience)</p> <p>Number of Kiribati Outer Island Water Security Project-related reports in local media</p>	<p>Executed contract or workplan, strategy document, information products</p>
Output 5.4: Effective data management	<p>Completion of water resource data management needs assessment, including comparison of current systems against requirements</p> <p>Completion of data management plan/roadmap</p> <p>Completion of data systems integration</p> <p>Completion of sustainability plan for integrated data system</p>	<p>Data management agreements with partners, plans, reports, guidance documents</p>
	<p>Emerging implementation issues, effectiveness and outcomes related to Component 5 will be identified through monitoring visits and possibly, a real time evaluative study</p>	

⁹⁵ Aggregate into indicator on total number people (disaggregated by sex and other GESI categories) benefitting (directly and indirectly) from interventions implemented by the project

Annex K. Indicative Reporting Template

Assessment of progress against outcomes

Colour	Progress
	Exceeded
	Achieved
	Partially achieved
	Not achieved or data not available
	Not applicable or too early to initiate assessment

End of Program Outcomes

Outcome	Progress towards outcome ⁹⁶						Summary of Achievements/Progress for Current Reporting Period ⁹⁷	Sources of Evidence
	1	2	3	4	5	6		

Intermediate Outcomes

Outcome	Progress towards outcome						Summary of Achievements/Progress for Current Reporting Period	Sources of Evidence
	1	2	3	4	5	6		

⁹⁶ For each reporting period

⁹⁷ This field can also be used for explanations, including flagging of unintended outcomes, factors which may be constraining emergence of an intended outcome etc.

Annex L. Government of Kiribati ‘No objection letter’



REPUBLIC OF KIRIBATI

MINISTRY OF FINANCE & ECONOMIC DEVELOPMENT

Phone: 686 740 21806 Facsimile: 686 740 21307, Address PO Box 67, Tarawa Kiribati

File Ref: 2/22

Date: 20/12/2019

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Enhancing the Resilience of the Outer Islands of Kiribati

In my capacity as designated authority for the Adaptation Fund in Kiribati, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Republic of Kiribati.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the Secretariat of the Pacific Regional Environment Programme (SPREP) and executed by the Ministry of Infrastructure & Sustainable Energy.

Sincerely,

A handwritten signature in blue ink, consisting of a large, stylized 'O' followed by a series of loops and a long horizontal stroke.

Hon. Teuea Toatu PhD
Vice President and Minister of Finance &
Economic Development

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