DEMAND & SUPPLY STUDY REPORT

KIRIBATI

Climate and Disaster Risk Financing and Insurance

This publication is brought to you by the Pacific Insurance and Climate Adaptation Programme (PICAP) .

The Programme is jointly administered by the United Nations Capital Development Fund (UNCDF), the United Nations Development Programme (UNDP) and the United Nations University Institute for Environment and Human Security (UNU-EHS).

PICAP in Kiribati is supported by the Governments of New Zealand, Australia and the United Kingdom.

Author:
This assessment was conducted by Robert Karoro of Environmental Mobility Research Unit, with substantial contributions from the PICAP and UNU-EHS teams.

November 2023

Images by UNDP Pacific Office in Fiji

Supported by:

What is this report?

This demand and supply study report examines the growing impact of disasters caused by environmental hazards on individuals and households across Kiribati and explores financial gaps that could feasibly be filled through climate and disaster risk financing solutions such as parametric insurance.

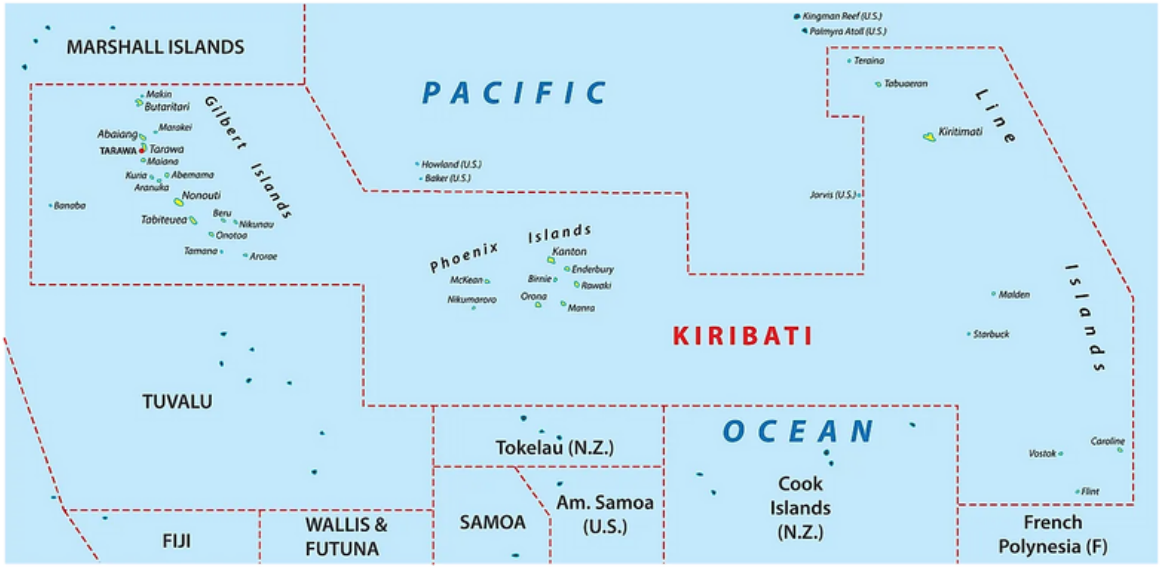
Kiribati, characterized by its low-lying atolls and vulnerability to rising sea levels and extreme weather events, is at the forefront of climate change impacts. This report delves into the complex landscape of disaster risk financing, assessing both the demand from Kiribati's population for effective insurance and financing tools to mitigate climate and disaster-related losses, as well as the supply side, including the capacity of insurance providers and the National Government to meet these needs. By shedding light on the intricate interplay between demand and supply, this study aims to inform the Pacific Insurance and Climate and Adapation Programme (PICAP) about the state of climate and disaster risk financing in Kiribati, with the ultimate goal of enhancing resilience and adaptation in the face of an increasingly uncertain climate future through targeted CDRF instruments.

It is noted that as flights had not yet resumed operation to pre-Covid norms for the Line Island group, this study does not cover perspectives from the group.

The study behind this report is based on:

Kiribati Country Profile

(Census[1])



1

KIRIBATI IS COMPRISED OF 32 ATOLLS AND 1 RAISED CORAL ISLAND

2

811km²
LAND AREA

3

POPULATION
119,438

4

50.7%
OF POPULATION ARE FEMALES

5

64.1%
OF POPULATION ARE OVER 15 YEARS OF AGE

6

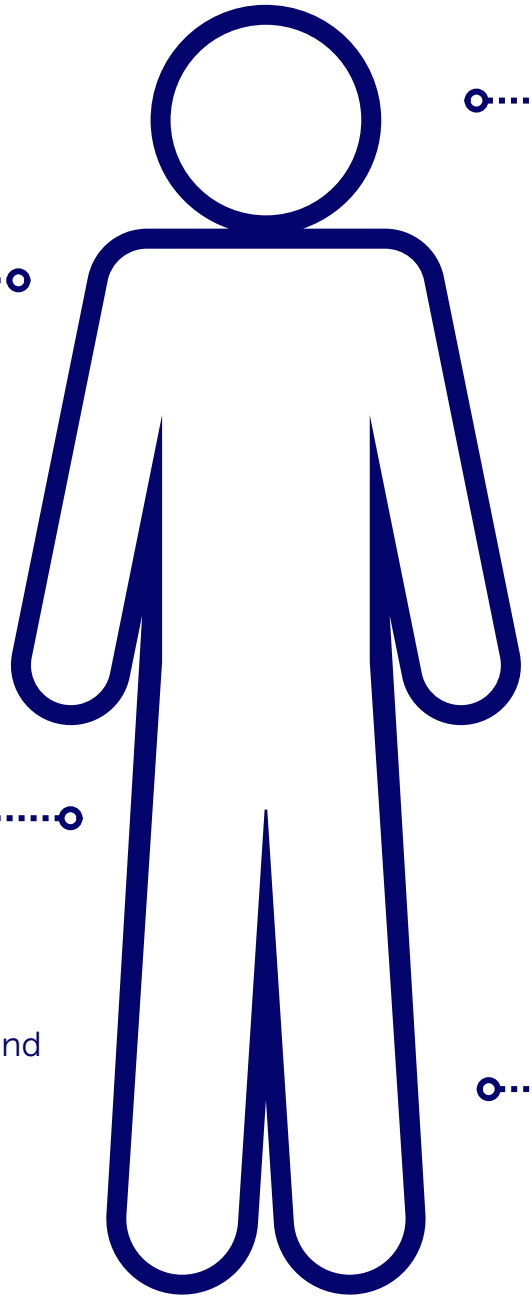
CLIMATE

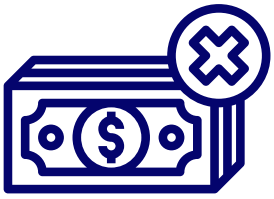
HUMID AND TROPICAL

AVERAGE TEMPERATURE OF 28°C

1 https://nso.gov.ki/statistics/population/

Macroeconomic and Development Indicators





21.9%

of I-Kiribati are living in Poverty

HOUSEHOLDS' MAIN INCOME SOURCE:

- formal employment
- sale from agricultural and fishing products
- remittances

US$1,606 [2]

GDP per capita

34.8%

Employment rate

Labour force participation rate:

54%

of population

2 http://datatopics.worldbank.org/world-development-indicators

Key Findings

Major Risks in Kiribati

DROUGHTS

Primary type of drought affecting Kiribati is meteorological drought, usually associated with a precipitation deficit.

Droughts associated with La Niña, can be severe in Kiribati.

Based on the Demand Side Survey 38 percent of respondents ranked drought as the most impactful natural event.

STORM SURGES

These also include damages caused by cyclone-induced storm surges resulting in king tides.

Based on the Demand Side Survey 38 percent of respondents ranked storm surges as the most impactful natural event

Kiribati Risk Profile[3]

Classification	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of coping capacities	Lack of adaptive capacities
Very Low	0.30 - 3.25	0.85 - 9.57	22.68 - 34.21	9.03 - 16.68	38.35 - 58.92	14.22 - 24.78
Low	3.26 - 5.54	9.58 - 12.04	34.22 - 42.02	16.69 - 21.56	58.93 - 71.19	24.79 - 34.10
Medium	5.55 - 7.66	12.05 - 14.83	42.03 - 48.32	21.57 - 28.16	71.20 - 77.87	34.11 - 40.66
High	7.67 - 10.71	14.84 - 19.75	48.33 - 61.04	28.17 - 44.85	77.88 - 85.50	40.67 - 52.59
Very High	10.72 - 47.73	19.76 - 82.55	61.05 - 75.83	44.86 - 70.52	85.51 - 93.17	52.60 - 70.13

Max Value = 100, classification according to the quintile method

3 https://weltrisikobericht.de/wp-content/uploads/2021/09/WorldRiskReport_2021_Online.pdf

National Disaster Risk Management Initiatives

Kiribati 20-Year Vision 2016-2036 (KV20):

Climate change is recognized in the development blueprint as a main constraint to achieving its development objectives and hence emphasizes the need to mainstream climate change adaptation and mitigation into all its programs.

Kiribati Joint Implementation Plan (KJIP) on Climate Change and Disaster Risk Management 2014-2023

The goal is to increase resilience through sustainable climate change adaptation and disaster risk reduction from a whole country approach. The national plan did not have any strategies for disaster risk financing instruments.

National Climate Change Policy:

This was launched in 2018 as a national high level policy document that is linked to the KJIP and incorporates issues related to climate institutional arrangements, vulnerability, mitigation, adaptation and climate financing issues and needs.

Financial Service Providers

COMMERCIAL BANKS

Australia New Zealand Banking Group

OTHER FINANCIAL INSTITUTIONS

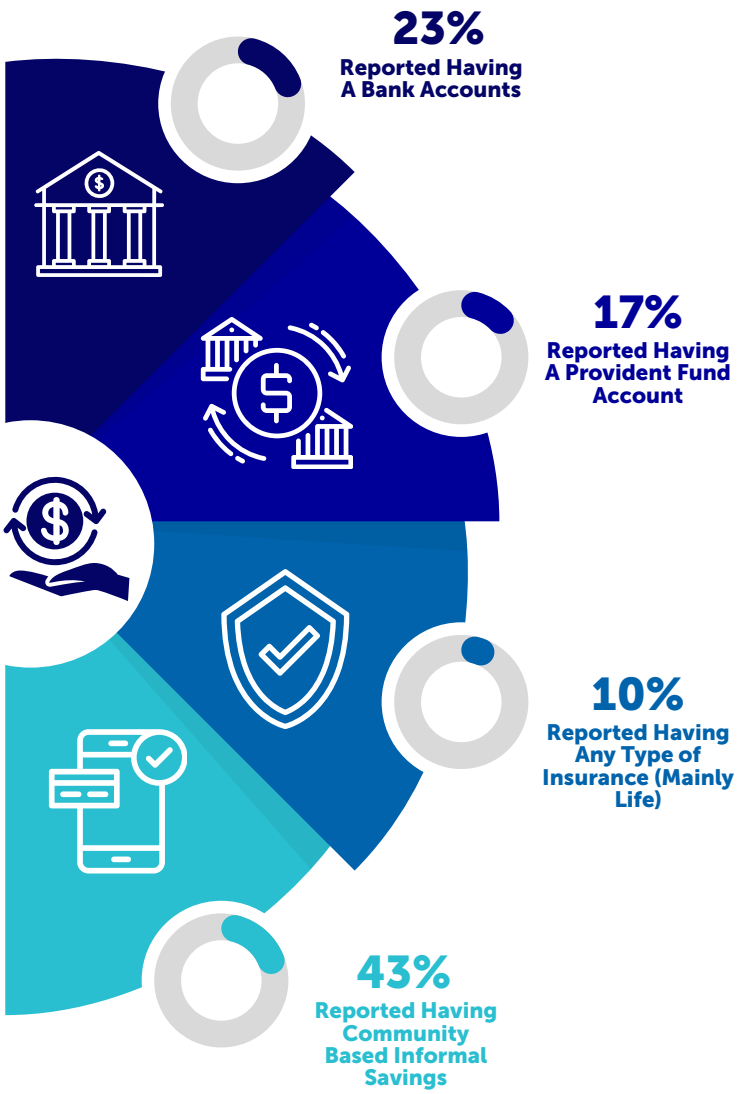
- Kiribati National Provident Fund
- Development Bank of Kiribati

INSURANCE COMPANY

Kiribati Insurance Corporation

MOBILE WALLET SERVICES

Vodafone Kiribati



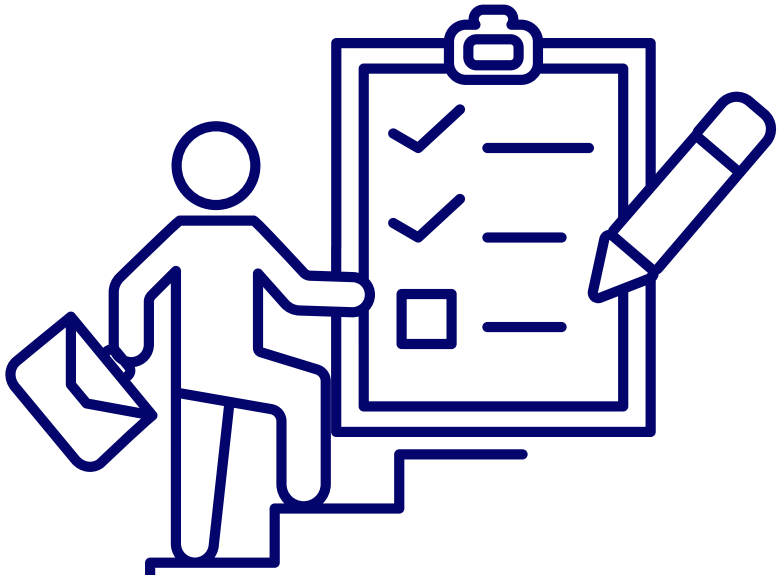
Community Coping Mechanisms

75%
Rely on Government Assistance

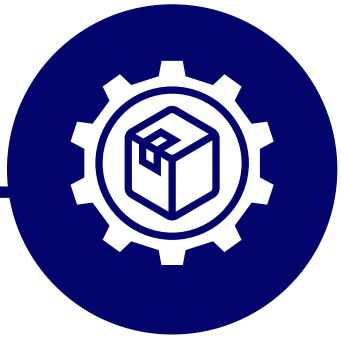
38%
Tap into their Savings

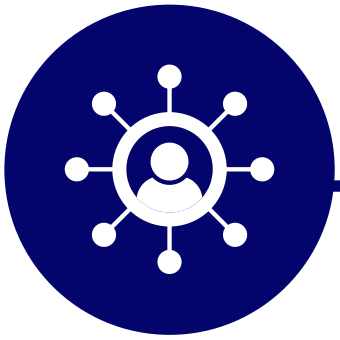
34%
Seek Assistance from Family either Domestic or Abroad

Next Steps



1 PRODUCT DEVELOPMENT





2 SUPPLY AND DISTRIBUTION CHANNELS

3 AWARENESS AND CAPACITY BUILDING

Contents

Abbreviations

AUD	Australian Dollar
CDRFI	Climate and Disaster Risk Financing Instruments
EDB	Equatorial Doldrum Belt
ENSO	El Niño Southern Oscillation
FGD(s)	Focus Group Discussion(s)
GDP	Gross Domestic Product
ITCZ	Intertropical Convergence Zone
KAS	Kiribati Agriculture Strategy
KCCS	Kiribati Copra Cooperative Society Ltd
KCMCL	Kiribati Copra Mill Company Ltd
KJIP	Kiribati Joint Implementation Plan
KV20	Kiribati 20-Year Vision
NDMO	National Disaster Management Office
NGO	Non-Government Organisation
PICAP	Pacific Insurance and Climate Adaptation Programme
RERF	Revenue Equalization Reserve Fund
PWD	Persons With Disabilities
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNU-EHS	United Nations University - Institute for Environment and Human Security

Introduction

Kiribati comprises of 32 atolls and 1 raised coral island. The 17 islands in the West, form the Gilbert group, the eight in the middle - the Phoenix group, and the eight in the East - the Line group. The islands are all thin and low-lying atolls with a combined land mass of only 810 square kilometres, the waters over which they are dispersed, however, are a staggering 3.5 million square kilometres. Owing to their geography and topography, they are highly vulnerable to the effects of Climate Change.

The climate of Kiribati is humid and tropical, with an average temperature of 28.3^{0}C and rainfall averages at about 2,100 mm per year in Tarawa, the capital island.[4] There are two main seasons: dry season (te Au Maiaki) from June to October and wet season (te Au Meang) from November to May. The weather is governed by the seasonal movements of the Intertropical Convergence Zone (ITCZ) and the Equatorial Doldrum Belt (EDB). The El Niño-Southern Oscillation (ENSO) is a natural pattern that occurs across the Pacific and affects the weather in Kiribati. El Niño and La Niña are the two extreme phases of ENSO. During wetter conditions (November to May) wind directions are often more variable, and winds between north and east are more frequent than usual as the ITCZ and EDB are at their furthest point south. During the dry season (June to October) both the ITCZ and EDB are situated to the north of the islands.

According to the 2020 census, Kiribati's population is 119,438. Over 90 percent of residents live in the Gilbert group, while most islands from the Phoenix and Line Group are uninhabited. Since World War II, centralisation of services to South Tarawa has led to large population movements that created an urban/rural divide: South Tarawa is now home to more than half the population (63,072) and provides infrastructure (e.g. airports, harbour, hospitals, road network) and amenities (e.g. government headquarters, businesses, transportation services) that do not exist, or only to a much lesser degree, in the rest of Kiribati, which are considered the outer islands.

An important financial source for Kiribati is the Revenue Equalisation Reserve Fund (RERF) which was established in 1956 to hold royalties from phosphate mining. Started with an initial sum of just over half a million Australian dollars, the fund accumulated over 900 million by 2016[5] owing to profitable investments in different currencies and conservative drawdowns that do not affect its balance negatively. Another important financial source is the sale of fishing licenses for the country's Exclusive Economic Zone (EEZ). Revenues from such sales accounted for 78 percent of the total national revenue of 253 million Australian dollars.[6] It is important to note that EEZ revenue is volatile and dependent on climatic changes. However, these two primary sources are not sufficient, hence Kiribati continues to be reliant on foreign aid (e.g. 71 million USD in 2016)[7] and remittances by seamen and seasonal workers mainly stationed in Australia and New Zealand (approximately 10 to 12 million AUD)[8].

Most I-Kiribati do not have formal employment. Kiribati has one of the highest unemployment rates in the Pacific with a total unemployment rate of 30.6 percent in 2019; youth unemployment is particularly high, at 54 percent.[9] Census data show that women are more likely to be unemployed than men, irrespective of age. Kiribati has limited natural resources and relies mostly on subsistence agriculture, copra and fishing. Therefore, instead of having formal employment, most people are farmers and fishers, as reflected in census data as well as the participants of this demand study. Importantly, these activities are their primary source of livelihood but the risk of financial losses and food shortages due to environmental and natural hazards is always present.

The present study helps to identify frequent natural hazards and their effects on individuals and households in Kiribati. Through stakeholder interviews, individual surveys and several focus group discussions (FGDs), information was elicited that provide insights into how I-Kiribati earn their livelihoods, cope with natural hazards and disasters, and how financial and other instruments aid in post-disaster recovery. From the demand side, special attention was paid to insurance, how they are understood and used, and how innovative insurance services may be introduced to meet their needs.

4 https://climateknowledgeportal.worldbank.org/country/kiribati/climate-data-historical
5 https://doi.org/10.5089/9781475535860.002
6 https://mfed.gov.ki/publications/mfed-annual-report-2015
7 https://euaidexplorer.ec.europe.eu
8 https://euaidexplorer.ec.europe.eu
9 International Labour Organization. (2022), Multi Indicator Cluster Survey 2019: Kiribati

Climate Risk Profile

The climate of Kiribati is hot and humid all year around. This tropical climate is closely related to the temperature of the oceans surrounding the atolls and small islands. However, its seasonal rainfall is highly variable from year to year, mostly due to the El Niño–Southern Oscillation (ENSO). Annual rainfall is highly variable and ranges from 1,000 mm near the equator to 3,000 mm in the North (Washington Island). Rainfall is highest between March and May, and lowest between August and October. Potential threats to human well-being and natural ecosystems include increased prevalence of heat wave and drought, intensified cyclones, saline intrusion, wave-driven flooding, and permanent inundation.[10]

Drought[11]: The primary type of drought affecting Kiribati is meteorological drought, usually associated with a precipitation deficit. Some major droughts in recent years are highlighted below:

- On 11 June 2022, the Kiribati Government declared a State of Disaster due to drought. Interviews with government officials noted that the entire country (some 120,000 people) was affected - with the most critical situation to be reported on the island of Tarawa.
- In March 1999, it was reported that a drought lasted for over a year. Major impacts were on water sources and tree crops. Breadfruit and coconut trees, essential food sources for atoll islanders, were severely affected.

The impact of droughts, usually associated with La Niña, can be severe in Kiribati. For example:

- The drought from April 2007 to early 2009 severely affected the southern Kiribati islands and Banaba. During this period, groundwater turned brackish and the leaves of most plants turned yellow.
- In the 1971, 1985, 1998 and 1999 droughts, annual rainfall was less than 750mm.

The incidence of drought is projected to decrease over the course of the 21st century. There is moderate confidence in this direction of change because a decrease in drought is consistent with projections of increased rainfall.

Floods, Cyclones, and Storm Surge[12] : Climatic patterns currently tend to shelter Kiribati's islands from the direct impact of cyclones, however, impacts can still be felt when cyclones pass within a few hundred kilometres. Known risks include the action of sea-level rise to enhance the damage caused by cyclone-induced storm surges, and the possibility of increased wind speed and precipitation intensity. Records of some recent major storms and floods are highlighted below:

- Severe weather brought by storms and tropical cyclones Penny and Mona, affected several Pacific islands, including Kiribati in late December 2018 and early January 2019. Strong winds damaged homes and crops, while heavy rain and storm surge caused widespread flooding. There were reports of flooding on the islands of Tamana and Tarawa after storm surges and heavy rain. Bonriki on Tarawa atoll recorded 366.5 mm of rain in 72 hours.
- Tropical cyclone (TC) Pam formed in the central south Pacific in early March 2015. It reached a category 5 severity and made landfall or otherwise directly impacted several islands in Vanuatu. The resulting swell propagated throughout the central Pacific, causing flooding and damage to communities in Kiribati and other island nations, all over 1,000 km from TC Pam's track.

The severity of these remote impacts was not anticipated and poorly forecasted.

- During the 2004 to 2005 El Niño, two major floods occurred — a "king" tide in February 2005 damaged the hospital in the town of Betio, and a second flood two weeks later breached sea walls, flooded causeways and damaged homes and public infrastructure.

10 https://ccprojects.gsd.spc.int/documents/new_docs/20-04/KIRIBATI_JOINT%20IMPLEMENTATION_PLAN.pdf
11 https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15816-WB_Kiribati%20Country%20Profile-WEB.pdf
https://reliefweb.int/report/kiribati/kiribati-drought-ocha-situation-report-no-1
12 https://floodlist.com/australia/pacific-islands-penny-mona-fiji-solomon-january-2019
https://www.livescience.com/20320-kiribati-island-rising-seas.html

Earthquake Risk [13]: A major swarm of intraplate earthquakes at the south-eastern end of the Gilbert Islands Chain (3.5°S, 177.5°E) commenced in December 1981 and lasted through March 1983. Prior to this swarm there had been no previous seismic activity reported in this region, and there is no record of recent volcanism.

National Disaster Risk Management

Climate change is recognized in the Kiribati 20-Year Vision 2016-2036 (KV20) as a main constraint to achieving its development objectives and hence emphasizes the need to mainstream climate change adaptation and mitigation into all its programs

Initiatives for disaster risk management at the national level is guided by the Kiribati Joint Implementation Plan on Climate Change and Disaster Risk Management (KJIP) 2014-2023. The KJIP underlines the country's goal to increase resilience through sustainable climate change adaptation and disaster risk reduction. In 2011, the Government of Kiribati requested new regional climate change programs to support communities on outer islands in their efforts to adapt to the adverse impacts of climatic changes and variability, and to strengthen the island's response capacities to man-made and natural hazards with a holistic and integrated approach.[14] Instead of focusing on only selected villages or sectors, the Whole of Island Approach targets the whole island ecosystem, communities and government structures while also considering its relationships with the national government and partners. The island of Abaiang, north of the capital island of Tarawa, was identified by the Government of Kiribati as a pilot site where community resilience to climate change and natural hazards will be addressed in an integrated fashion across all sectors of social and economic life. The integrated approach is designed to more comprehensively support people and the environment on which they depend for sustenance and livelihoods, and promotes better coordination between community, local and national government and donor-funded projects. The KJIP, however, did not underline strategies for disaster risk financing instruments to build communities' self-resilience.

In 2018, the government launched the National Climate Change Policy as a national high level policy document that is linked to the KJIP and incorporates issues related to climate institutional arrangements, vulnerability, mitigation, adaptation and climate financing issues and needs. Current financing is characterized by more longer-term investments in resilience, adaptation, and preparation and these are mainly donor grant financed projects.

13 https://websites.pmc.ucsc.edu/~thorne/TL.pdfs/LO_Gilbert_PEPI1983.pdf
14 https://ccprojects.gsd.spc.int/documents/new_docs/20-04/KIRIBATI_JOINT%20IMPLEMENTATION_PLAN.pdf

Agriculture Landscape

GDP CONTRIBUTION

10%

to Kiribati's GDP

MAIN GOODS PRODUCED

include copra, taro, breadfruit, sweet potatoes, vegetables, bananas, screw-pine, cassava and papaya

FISHING SECTOR CATEGORIES

- Coastal Fisheries
- Offshore Fisheries

KEY EXPORTS

exports are limited to coconut products and fish

valued at A$11.3 million in 2020, or 83% of the country's total export value of A$13.5 million

KIRIBATI COPRA MILLING COMPANY

This state-owned company is the largest agricultural enterprise in the country and produces copra, and accounts for about two-third of overall export revenue

CROP GROWING ACTIVITY

- Most common on the islands of of Kanton, Butaritari, South Tabiteuea and Nonouti
- Least common on Betio, South and North Tarawa Islands

LIVESTOCK AND POULTRY

A total 87,450 livestock and poultry was recorded in 2020

Agriculture

Agriculture, along with forestry and fishing, contributes 26 percent to the GDP of Kiribati. The main goods produced by the sector include copra, taro, breadfruit, sweet potatoes and vegetables. Other food crops include bananas, screw-pine, cassava and papaya. The state-owned Kiribati Copra Milling Company is the largest agricultural enterprise in the country and produces copra, and accounts for about two-third of overall export revenue. The limited land area and unproductive soils restrict the opportunities for export diversification. Crop production has primarily been carried out for subsistence. The soil in Kiribati is considered amongst the most infertile in the world, being young, shallow and alkaline, limiting conventional agricultural methods.[15]

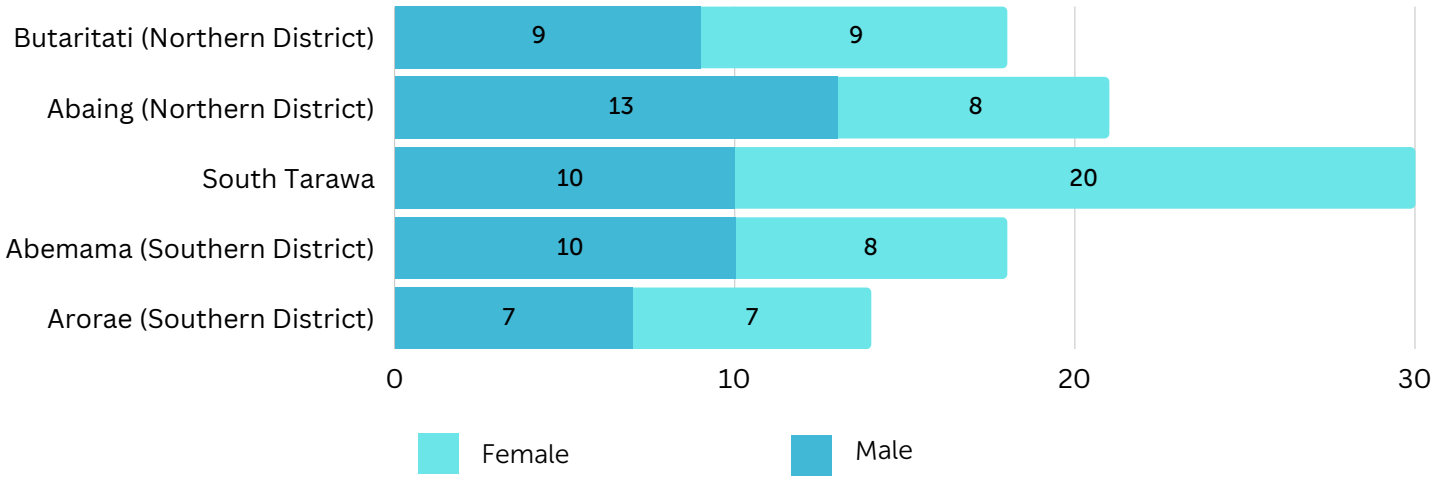
In 2016, available agricultural land was 42 percent of the total land area compared to 53 percent in 1964. Kiribati's key exports are limited to coconut products and fish, with exports of these products valued at A$11.3 million in 2020, or 83 percent of the country's total export value of A$13.5 million.

The 2020 census reported that 23 percent of Kiribati's working population (> 15 years) are employed in agriculture, making it the second largest employment sector. In developing the Kiribati Agriculture Strategy 2020- 2030 (KAS), a problem tree analysis tool was used to identify the focal problem of declining agriculture production and local engagement in Kiribati and to identify its related causes and effects.

Demand Study: Results and Analysis

In order to obtain information on hazards, damages, income streams, as well as current knowledge of and access to insurance services, data was collected by means of 1) a survey and 2) FDGs. A total of 120 respondents completed the survey: 51 percent of respondents were female, 49 percent male; 18 percent fall into the youth category (unmarried and 30 years of age or younger); and data collection took place on five different islands representing different districts of the Gilbert Island group (see Figure 1). Most respondents report being married and had either started or finished secondary school. A total of 136 informants (82 female, 54 male) participated in separate focus group discussions for women, men, youths and persons with disabilities (PWDs).

Figure 1: Survey Respondents by District and Gender - in Percent

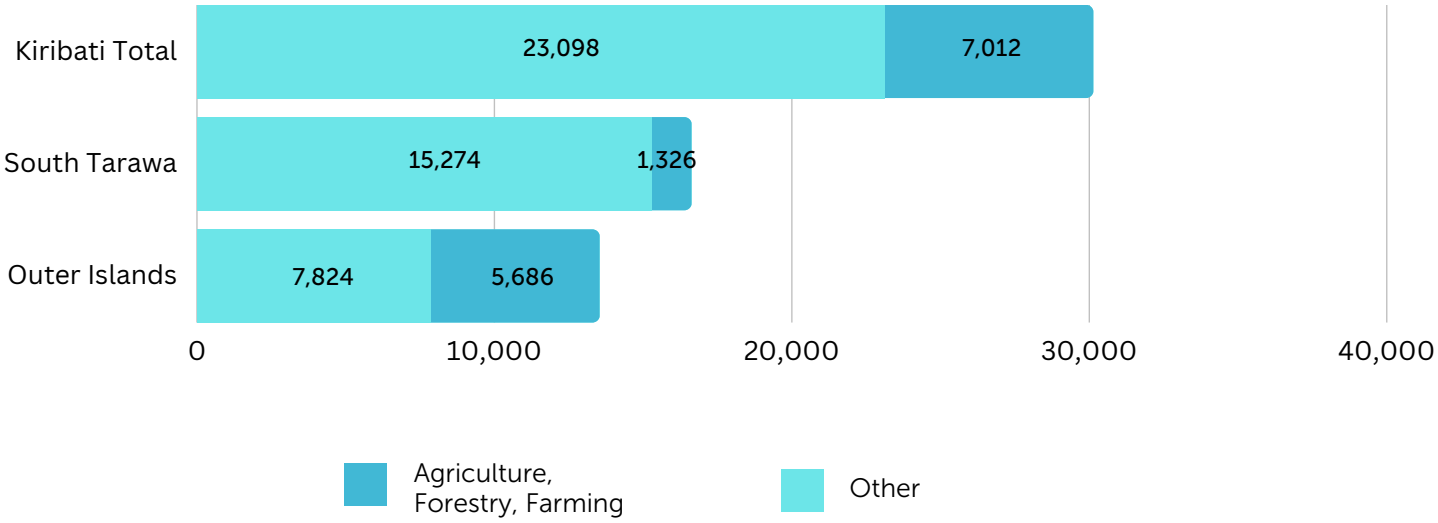


15 https://nso.gov.ki/census/kiribati-agriculture-and-fisheries-report-based-on-2020-census/

Livelihood

The 2020 census lists "agriculture, forestry and fishing" as the most common source of income in the outer islands and the second most common nationally: as reflected in Figure 2, 7,012 I-Kiribati of 30,110 (23%) listed as employed work in this sector; in all parts of the country except South Tarawa, this proportion is substantially higher (5,686 of 7,824: 42%). The survey respondents demonstrated a clear reliance on subsistence farming or fishing as their principal source of livelihood, with farming primarily undertaken by women and fishing by men (see Figure 3, top). This gender split has been reported elsewhere and is also emphasised in the FGDs.[16]

Figure 2: I-Kiribati Working in Agriculture, Forestry and Farming



Fishers are considered to have a more stable income in comparison to farmers as they can usually go out to sea three times a week. Despite that, they mention that catches have been dwindling, forcing them to fish farther out for which different equipment is needed and more money for fuel. Catches are usually sold on markets or to associations; the current price of fish is 2.50 AUD per kilogram, an increase from 2018 when it was approximately 1.50 AUD. This increase is mainly due to similar increases for copra (see below). However, in contrast to copra as well as rice, sugar, flour, gas and fuel which are subsidised through the government, prices are not well regulated when it comes to fish. The surveys also showed that the majority of fishers do not own a fishing boat and thus join associations or communities. To a lesser degree, women are also involved in fishing (not solely the sales), traditionally close to the shoreline where they collect seaworms (te ibo) or arc shell. However, in South Tarawa, formerly viable fishing grounds have become overexploited from overharvesting as well as the impacts of pollution, resulting in a negative financial impact.

Similarly, farmers struggle with droughts and water scarcity on the one hand and extreme rainfall on the other. Produce is often consumed by the farmers or their extended families, rather than sold. Selling produce is difficult especially on the outer islands, where opportunities are generally limited to public holidays and spontaneous sales to family, neighbours or people at the roadside. Somewhat of an exception exists for copra farmers who can sell their produce to the Kiribati Copra Mill Company Ltd (KCMCL) and the Kiribati Copra Cooperative Society (KCCS). However, on the outer islands, copra may be exchanged for goods and foods (e.g., rice, sugar, flour, etc.). Government pay-outs for copra usually occur in the beginning and middle of the year. Therefore, farmers find themselves in a position where they work without a regular income and instead receive relatively large sums at specific points in time. Especially in the rural areas (all outer islands), delays of government payments are common, and barter becomes a

16 https://asiapacific.unwomen.org/sites/default/files/2022-11/UN-WOMEN_KIRIBATI_0.pdf

means to cope with the resulting circumstances. In 2018, the government increased the price of copra from 1 AUD per kilogram to 2 AUD. The increase in the price has had a positive effect on household income and acted as a welcomed inhibiting factor on migration from the outer islands to South Tarawa where population pressure is immense; women and youths too were more drawn to the copra industry. However, raised prices and increased interest has resulted in a reduction of the number of fishermen in the outer islands. In 2022, copra prices were raised again to 4 AUD per kilogram, further exacerbating these effects.

While environmental factors put pressure on everybody, people with disabilities are disproportionately affected as they face difficulties in keeping up with the competition around them. They may also be in a worse position to react to changing economics, for instance as a result of new copra prices. Therefore, a majority of those participating in the PWD focus group reported that they are dependent on government social welfare (see below).

Crucially, all four FGDs express their concern about not being able to afford equipment needed for their work, frustration with the fact they are financially highly reliant on activities that are so dependent on environmental factors, and that the sale of their produce or catch is often not possible due to lack of transportation.

Figure 3 (a) : Main Source of Livelihood

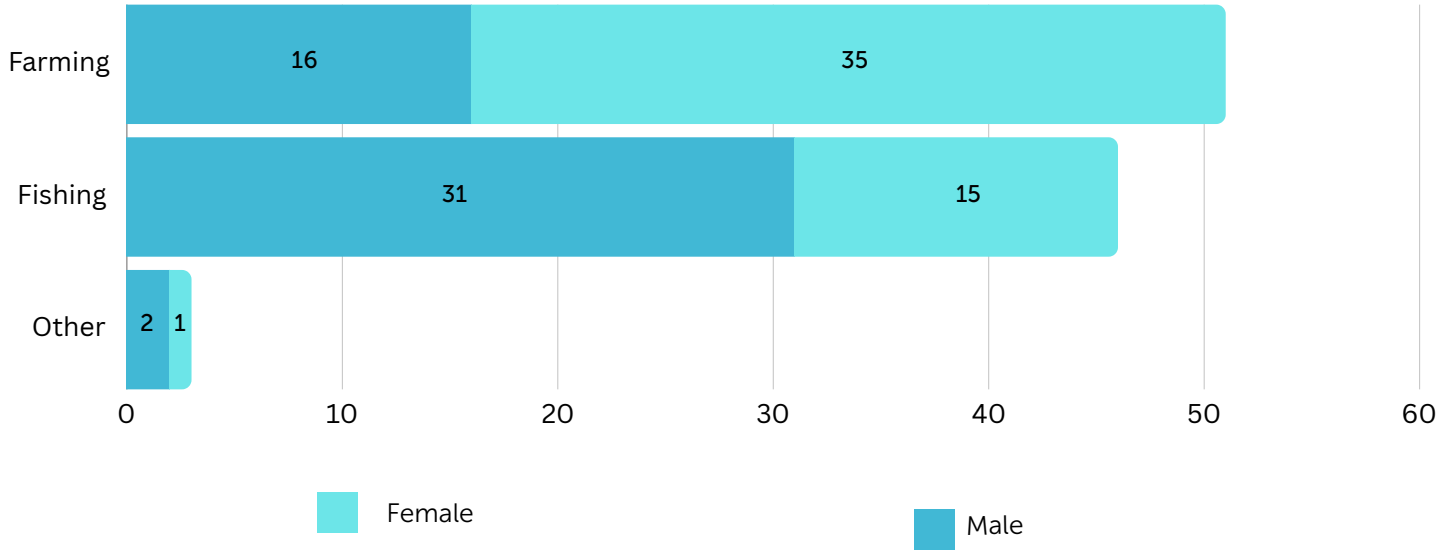
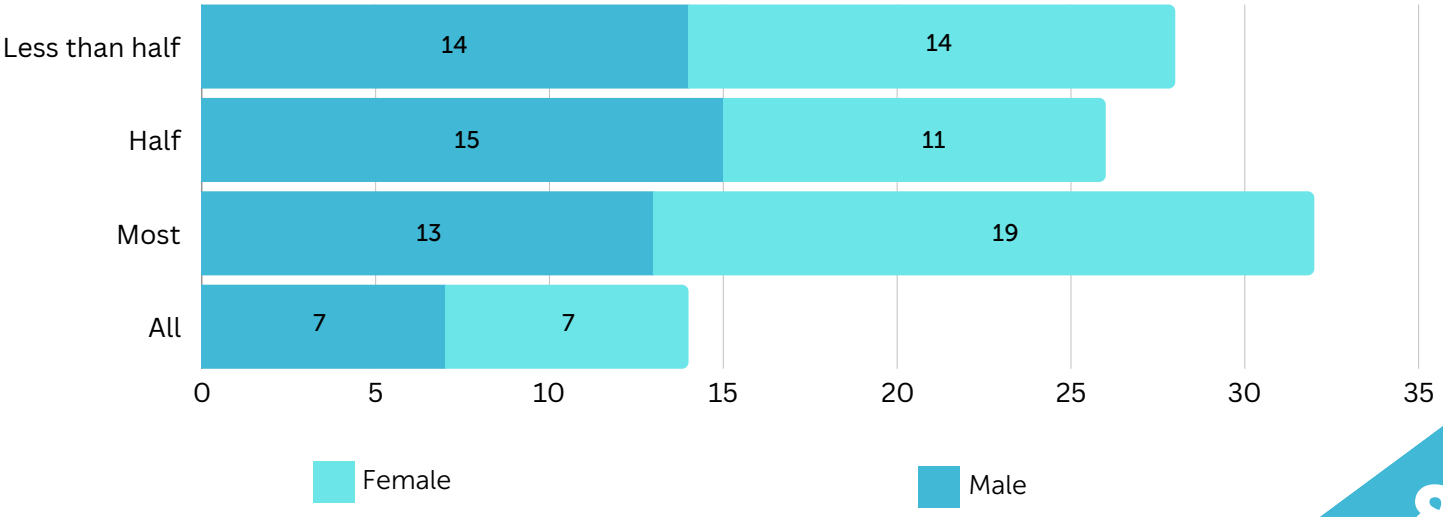


Figure 3 (b) : Proportion of Annual Income - in Percent



While average annual income greatly varies with some reporting less than 1,700 AUD and others above 12,000 AUD, only 28 percent of responses indicate that farming and fishing comprise less than half of their earnings; while 13% depend on these activities entirely (see Figure 3, bottom). For the reasons mentioned above, financial vulnerability is a reality for most of the surveyed respondents, and for most of I-Kiribati in general. When farming (including copra) or fishing are not primary or secondary contributors, social welfare is also reported as important sources of income, by the majority of respondents (73%). Less important or less viable sources on the whole are wages (28%) – notably, over half of those naming wages as an alternate source of income are from South Tarawa - income through small business (19%) and handicrafts (13%), or remittances (8%). The relevance of these alternative activities are presented in Table 1 by means of a score (for instance, social welfare was put in first rank 10 times for 3 points each, in second rank 31 times for 2 points each, and in third rank 46 times for 1 point each – (10x3) + (31x2) + (46x1) = score of 138). Social welfare was increased in 2020, in line with the Kiribati 20-Year Vision 2016-2036, or KV20[17] and includes benefits for the unemployed, PWDs, and citizens over the age of 60. Currently, the government is reviewing its policy on social welfare benefits in order to, among other things, ensure that double-payments to individuals do not occur.

Table 1: Alternative Income Sources Ranked

Alternative Income	3	2	1	Score
Copra	99	32	10	141
Social welfare	30	62	46	138
Farming	51	34	7	92
Wages and Salary	78	14	0	92
Fishing	33	30	16	79
Small business	33	18	3	54
Pension	15	22	8	45
Other	6	10	16	32
Handicraft	12	8	6	26
Remittances	3	10	8	21

Darker shading indicates more points

Income is received by and large in the form of cash. It is also the preferred way of receiving money. Other forms of transfer are mentioned but rare. As previously noted, coconuts are sometimes traded as currency, which can then be be used again in copra production. For all respondents, the money received is used primarily to purchase food. Other important expenditures are education (57% positive responses), church obligations (47%), internet and mobile phone (40%), and entertainment events such as kava sessions (33%). A majority of Kiribati households are comprised of

17 https://www.mfed.gov.ki/sites/default/files/KIRIBATI%2020-YEAR%20VISION%202016-2036%20.pdf

extended family, especially in South Tarawa. Thus, a huge portion of the household income is usually spent on basic items such as rice, sugar, flour, etc. Education is free in Kiribati, but families still need to pay their children's fare, uniform and books. An important factor to note is that paying for utility bills, especially for electricity, is not a major expense as most households surveyed are from the outer islands where electricity is not provided by a power plant but harvested via solar panels.

Natural Hazards

Survey participants were first asked to rank the relevance of hazardous events. As presented in Table 2, rainfall and flooding, droughts, strong winds as well as flooding not associated with the abovementioned unsurprisingly receive the highest score (for instance, rainfall and flooding was put in first rank 24 times for 7 points each, in second rank 56 times points for 6 points each, etc. – (24x7) + (56x6) + … = score of 686 –; it is possible that at least one respondent applied a reverse ranking – e.g. volcanic eruption was put in first instead of last rank –, slightly skewing the results). Although some report no change or a decreasing tendency, the clear majority state that hazardous events increase both in frequency and severity. This is aligned with scientific projections for Kiribati's future climate: increase in annual rainfall, ocean acidification, sea-level rise, as well as increase in intensity and frequency of days of extreme heat.[18]

Table 2: Hazards Ranked

Hazards	7	6	5	4	3	2	1	Score
Extreme rainfall and associated flooding	168	336	145	32	0	4	1	686
Drought	322	66	105	76	48	12	1	630
Strong winds	322	174	55	72	24	6	5	658
Flooding from other sources	7	90	185	136	33	14	15	480
Earthquake	7	36	55	56	129	60	15	358
Tsunami	7	12	30	84	84	108	8	333
Volcaninc eruptions	7	6	25	24	42	36	75	215

Darker shading indicates more points

Not all islands of Kiribati are affected equally. The southern islands of the Gilbert group are distinct in that they are the only ones experiencing earthquakes and much more likely to be hit by South Pacific cyclones. During Cyclone Pam in 2015, the Kiribati National Disaster Management Office (NDMO) reported that the three southern-most islands (Onotoa, Tamana and Arorae) were struck by strong winds which caused extensive damage to houses.[19] Moreover, the southern islands are disproportionately more affected by droughts; expectedly then, almost all respondents from Arorae chose droughts as their first-ranked hazard.

18 https://www.ipcc.ch/report/ar6/syr/
19 https://reliefweb.int/report/kiribati/pacific-kiribati-tuvalu-solomon-islands-and-papua-new-guinea-information-bulletin-n

In contrast, the central islands struggle more with strong winds, and the northern islands with heavy rainfall and flooding.

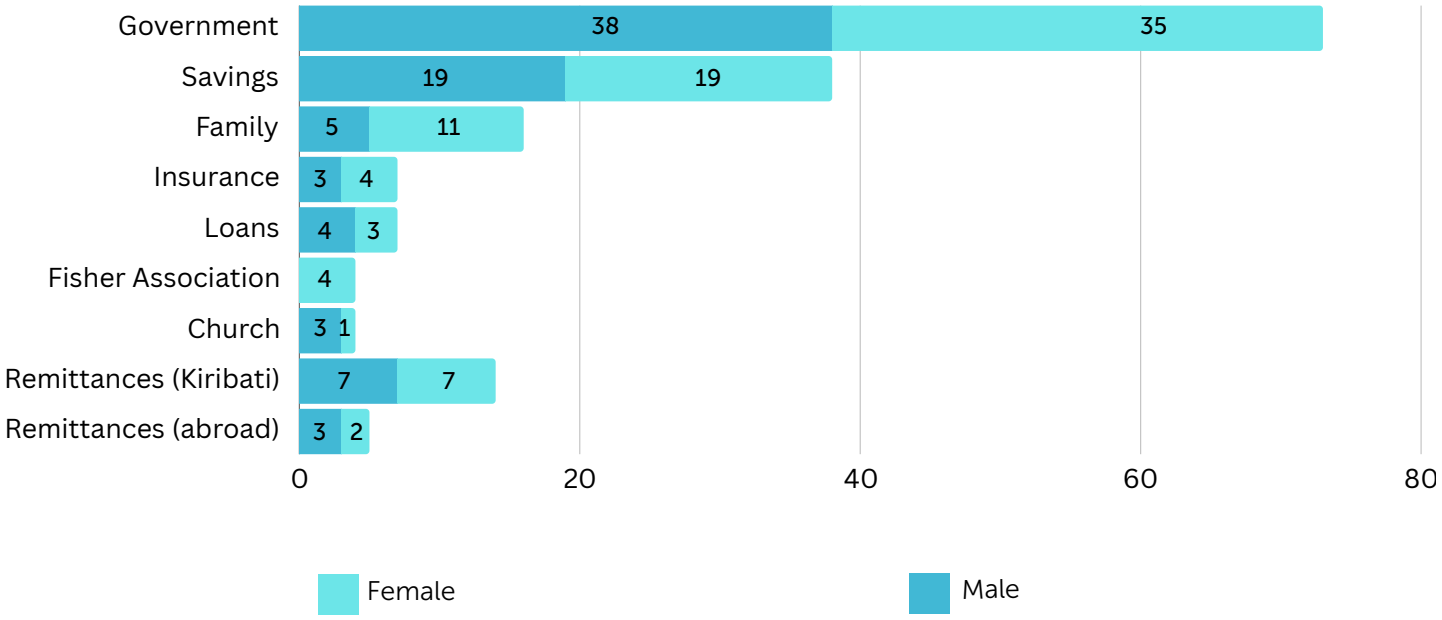
The high-ranked events have obvious adverse effects on agriculture as they can damage crops and soil and prolong recovery periods. All the while, farmers experience reduction or complete hiatus of productivity and may have to invest in new seedlings. It may take several months until farming activities can resume at full capacity. Fishers may not go out to sea for several days in a row due to dangerous conditions; stories of I-Kiribati drifting out and being lost at sea are well-known. Thus, they may lose out on food and income through sales. Equipment may get lost and entire boats, or their engines destroyed. Even if fishers do not own a boat themselves, they may need to pay back the owner for what are already unproductive days. Aside from livelihood activities being affected, there are direct effects on human health, too, due to the impact on the fresh water sources: sea water may pollute the wells, or the well water may turn brackish during prolonged periods of drought. Women and people with disabilities note in their respective FGDs that lack of clean drinking water adds difficulties for every-day chores such as cooking, cleaning and bathing. As much as possible, people try to get by, relying on support channels (see following section) or hoping to find alternate income sources. Women comment that it is easier for them to generate a bit of income, for instance through sewing or baking. Youth often find themselves more restricted and become reliant on their family's help.

Financial Instruments

When damages from natural events occur, 64 percent of respondents state that 50 AUD are enough to recover, while 29 percent estimate that 50-200 AUD are needed. Financial recovery is usually achieved within the first 30 (74% of responses) or 60 (12%) days. Respondents also estimate that up to a quarter (66%) or between a quarter and half (27%) of their annual income is spent on recovery from hazards they ranked first and second; again, higher estimates are given by a few. This seems somewhat contradictive either towards the frequency and estimated financial damage of hazardous events or towards the income reported. What remains certain, however, is that environmental events and resulting financial damages are commonplace in Kiribati.

For recovery, majority of respondents (73%) state that they are principally dependent on the government (see Figure 4) whose Ministry of Internal Affairs (MIA) works directly with island councils. Any kind of effort is difficult to coordinate and deploy, as islands are often hard to reach during a disaster or also for some time after. On the one hand, governmental assistance includes support to an individual, e.g. through social welfare payments or through the distribution of gardening tools for farmers, on the other hand, it includes support to communities, e.g. through the provision of boats and water tanks. In many cases, programs following natural hazards are deployed with assistance from donor partners, NGOs, foreign aid and regional organizations. FGDs note about such programs, however, that resources are limited, benefits for the individual are small, and many remain unaware of them due to lack of awareness raising.

Figure 4: Financial Assistance During an Event (Multiple Responses Allowed) - in Percent

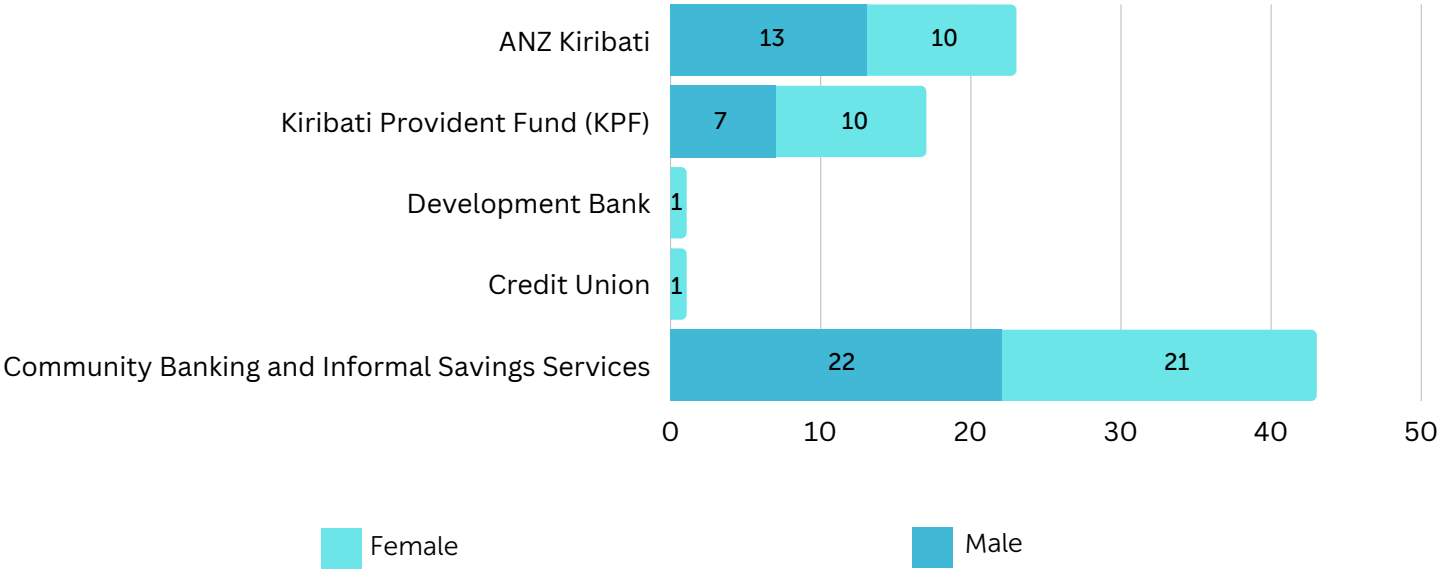


Other financial channels are less prominent, although no less important. 38 percent tap into savings, although only 25 percent reported having a formal savings account; for many, income is simply too small, so it is immediately spent on daily necessities rather than being saved. Notably, remittances are a highly important channel for residents of South Tarawa, as they are the only ones with access to international money transfer institutions, such as Western Union. However, limitations exist as customers may only receive up to 300 AUD per day and, even in periods without disasters, may wait in line for multiple days because the transfer office lack liquidity.

What needs to be taken into consideration for the rolling out of new financial services in Kiribati is that financial literacy is relatively low and existing institutions and instruments are not readily used, as is also evident from Figure 5. Besides the two well-known national providers – Kiribati Provident Fund (KPF), Development Bank of Kiribati (DBK) –, there is only one established international bank, ANZ Bank Limited. For a long time, South Tarawa and Kiritimati (in the Line Group) were the only islands with ANZ bank branches as well as ATMs. EFTPOS machines in the other outer islands are only relatively recent additions and allow for easier intranational money transfers, notably free of charge.

Internet and mobile banking, too, are new additions to the financial services of ANZ. Innovative services take time until they become accepted and widely used in Kiribati, as even the more conventional options are not yet commonly used: as mentioned above, only 25 percent of respondents have a formal savings account. Although FGD participants note that formalised, legal and internationally recognised institutions such as the abovementioned providers makes them trustworthy, community banking schemes and informal savings services are more popular. The most common scheme is te karekare (similar to savings club) which consists of groups (in some cases households) paying equal shares to one of the group members, with every member awaiting their turn. The popularity of this scheme is explained by the attraction of a relatively large amount of money at a specific point in time. However, the various times a participant is obligated to make a payment receives less attention. Often, participants are not able to fulfil their obligations and te karekare schemes may remain short-lived.

Figure 5: Financial Institutions used by Respondents - in Percent



Connectivity is not only a factor when it comes to accessibility to more innovative financial solutions, but it is also a requirement for the assessment of the severity and damages of an event. That is especially true given the vast territory of Kiribati. Two carriers exist, Vodafone and Ocean Link, who offer 4G coverage for many areas. For others, satellite internet connection may be available at the local Island Council. Most respondents report that they have a mobile phone and their area has phone and internet coverage, but crucially, that is not true for all: 13 percent say, they do not have a phone; seven percent and 10 percent reported no phone and internet coverage respectively. Also, phones are not necessarily owned by one person but shared with other family members. In Kiribati, there are still a lot of areas where connectivity is not guaranteed. Moreover, the resounding majority of respondents agreed that extreme weather affects network connectivity with only five percent providing negative answers. In case of complete network outages, which are not uncommon, it may take up to three days until services are restored. In addition to damage assessments, the internet may be used to transfer money for post-disaster recovery efforts. However, mobile phones in Kiribati are not widely used for monetary purposes yet. Only a handful of respondents reported having mobile money, or that they use it to pay bills or to transfer money; the latter option is only available for Vodafone customers through the M-PAiSA service and, as FGD participants mentioned, it is quite expensive. Therefore, even if there are or were other financial instruments available in Kiribati that allow for the deployment of financial support, they remain dependent on the relevant amenities and infrastructure to be available.

Insurance

The current insurance landscape depends on employer-driven insurance schemes in which payments are deducted at source. Beyond insurance for vehicles, acceptance of insurance products is scarce and would require an improved understanding of costs and benefits.

Households are interested in exploring new insurance products, but a lack of financial literacy and community involvement remain barriers to acceptance.

INSURANCE HOLDERS

10% reported having any type of insurance (mainly vehicle and life)

Insurance holders are mostly civil servants or employees at state-owned enterprises

KIRIBATI INSURANCE CORPORATION

Established in 1981 under Cap45A of Kiribati's laws to carry out insurance services to the people of Kiribati on an exclusive basis.

LIFE AND NON-LIFE SEGMENTS

1 Life Insurance Product

- Life endowment with profits

7 Classes of Non-Life:

- Motor
- Marine
- Aviation
- Fire and Allied Perils
- General Labiality
- Workmen Compensation
- General (Miscellaneous - Those that do not fit in the above classes)

INSURANCE PREFERENCE

97% interested to take up insurance as a response mechanism for natural hazards

Strong preference to bundle climate insurance with health and life

WILLINGNESS TO PAY

76% are willing to pay premium of AUD $50 for either AUD $500 or up to AUD $1,000 cover

KEY STAKEHOLDERS FOR CLIMATE RISK INSURANCE

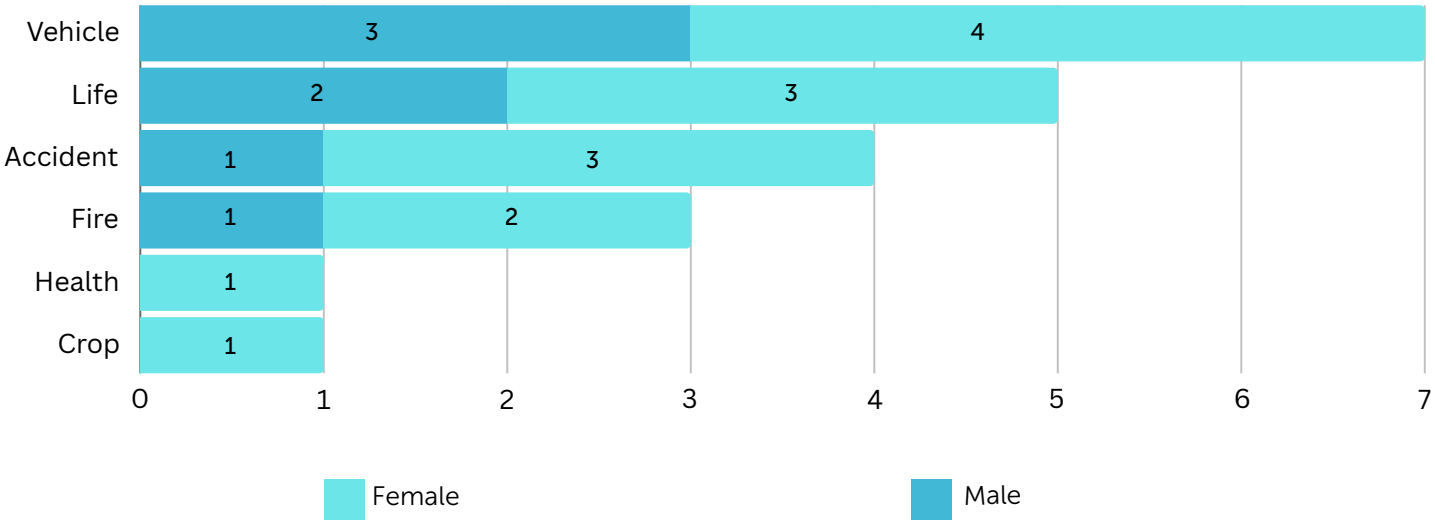
- Ministry of Environment, Lands, and Agriculture Developments
- Kiribati Copra Milling Company
- Australia New Zealand Bank
- Development Bank of Kiribati
- Kiribati Provident Fund
- Ministry of Finance and Economic Development

DISASTER RECOVERY

8% state that insurance provides them with financial assistance during natural events

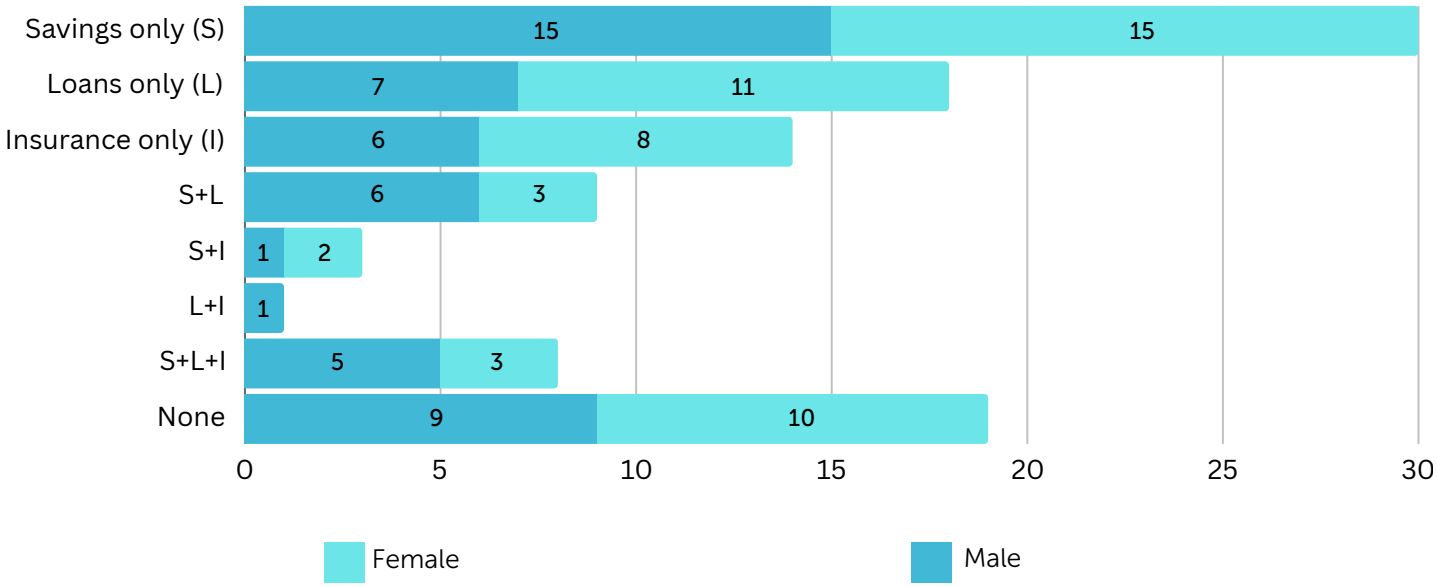
As Figure 4 in the previous section shows, insurance as a monetary source for recovery does not rank high: only 8 percent say that insurances provide them with financial assistance during natural events, through a state-owned institution. In total, only 10 percent of all respondents report to have any kind of insurance, for themselves or their spouse; survey participants were also asked whether they knew someone who has or has had insurance, a question that was only positively answered by 13 percent. Most have insured vehicles or have life insurance; other packages are less common (see Figure 6). An important observation here is that, although the sample is small, there is a skew towards women who are more likely to hold insurance. In general, insurance holders are civil servants or employees at state-owned enterprises for whom deductions are made directly from their wages – of the 10 percent that are insurance holders mentioned above, more than half are from South Tarawa. On the one hand, this allows for relatively easy access to insurance; on the other, comprehension is not necessarily fostered when signing up for an insurance service as an automatic consequence of employment rather than a result of active information seeking and a conscious decision-making process.

Figure 6: Insurance Packages Currently Held by Respondents - in Percent



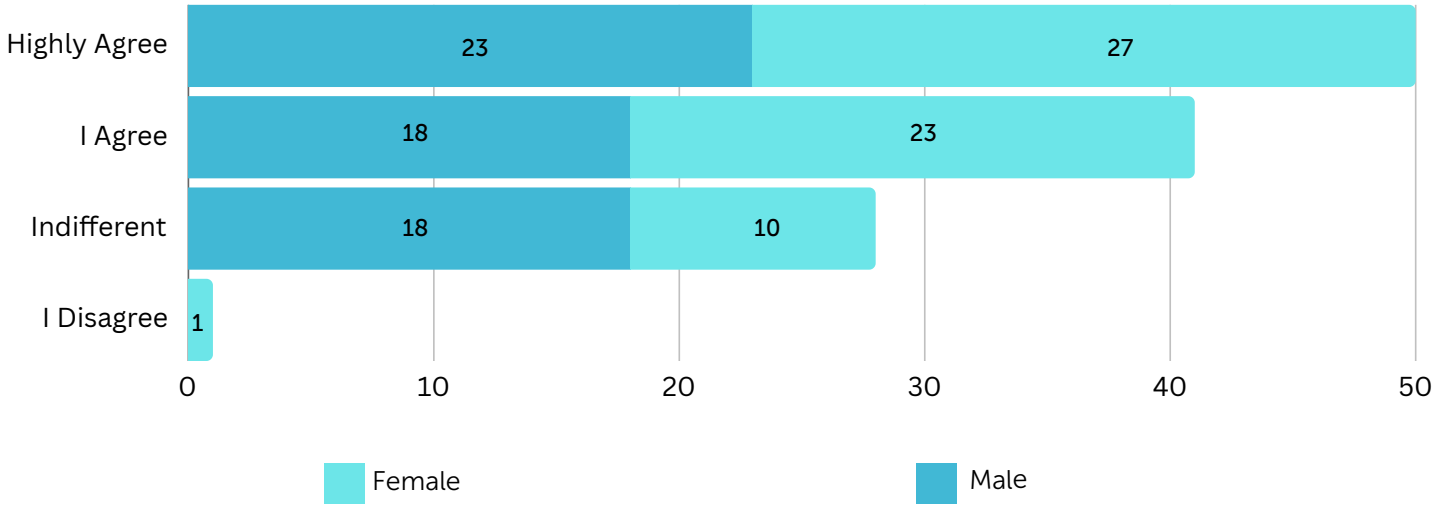
Interest for insurances or other financial instruments is not definitive from the survey data alone. Many do express interest for savings, loans or insurance separately, less interest exists for combinations, and 19 percent of respondents do not express interest for any of these options (see Figure 7). FGD participants comment on the easy availability and lack of formalities regarding savings or loan options, although they are inaccessible altogether for youth as community banking is only open to those of age. Importantly, when asked "Would you be interested in insurance products that bundle natural hazard risks with health or life insurance?", 50 percent of survey participants responded positively, 43 percent with "maybe", and only seven percent declined. However, the reasons given by the latter group indicate an insecurity or lack of understanding when it comes to the proposed insurance packages, or a lack of funds to pay for them. Thus, their negative answer should not be seen as lack of interest as such. All focus groups indeed state that they are certainly keen to explore a proposed bundled option. Therefore, while hesitance for such a service to be accepted is to be expected, a general interest seems to exist. Also, health and life insurance are more relevant than insurance for houses since the vast majority of buildings in the outer islands as well as a large proportion in urban South Tarawa are non-permanent structures.

Figure 7: Preferred Financial Instruments to Manage Natural Hazards - in Percent



Reactions to the statement "I understand how insurance works in general" are mixed. Survey data suggests that there is a group of people that have adequate or good understanding of insurance – this group includes most respondents from South Tarawa who have more exposure to existing insurance instruments, while a sizeable group chose the answer "Indifferent", indicating that certain knowledge gaps are still prevalent (see Figure 8). From the FGDs, it is apparent that I-Kiribati are mostly exposed to information about insurance through radio announcements or visits by insurance company representatives. More familiarisation happens through conversations with people in the inner circle such as other family members. Generally, there is consensus with regards to trust in insurance companies to cover what they promise to cover, and with regards to insurance instruments not simply being a product for the rich. More detailed comments during FGDs, however, also show that there is a belief that insurance makes more sense for people with a stable source of income, which may or may not be tied to a regular salary, as it would be too expensive without it.

Figure 8: Understanding of Insurance - in Percent



Asked specifically about costs and returns, respondents state that they expect insurance to be affordable and thus in the range of 50 AUD or less for covers less than 500 AUD, while some estimate premiums to be higher; coverage is thus also expected to be higher (see Figure 9(a) and 9(b) respectively). Whether insurance should be purchased through an association trigger mixed responses from both fishers and farmers. This may be due to associations in South Tarawa being less active and also less needed because direct sales are more lucrative, or due to them not existing or operating everywhere. There is generally no discernible effect for outer islands with regards to this question, with the exception of Abaiang: 72 percent state that they do not favour insurance that is tied to an association.

Figure 9 (a) Preferred Premium - in Percent

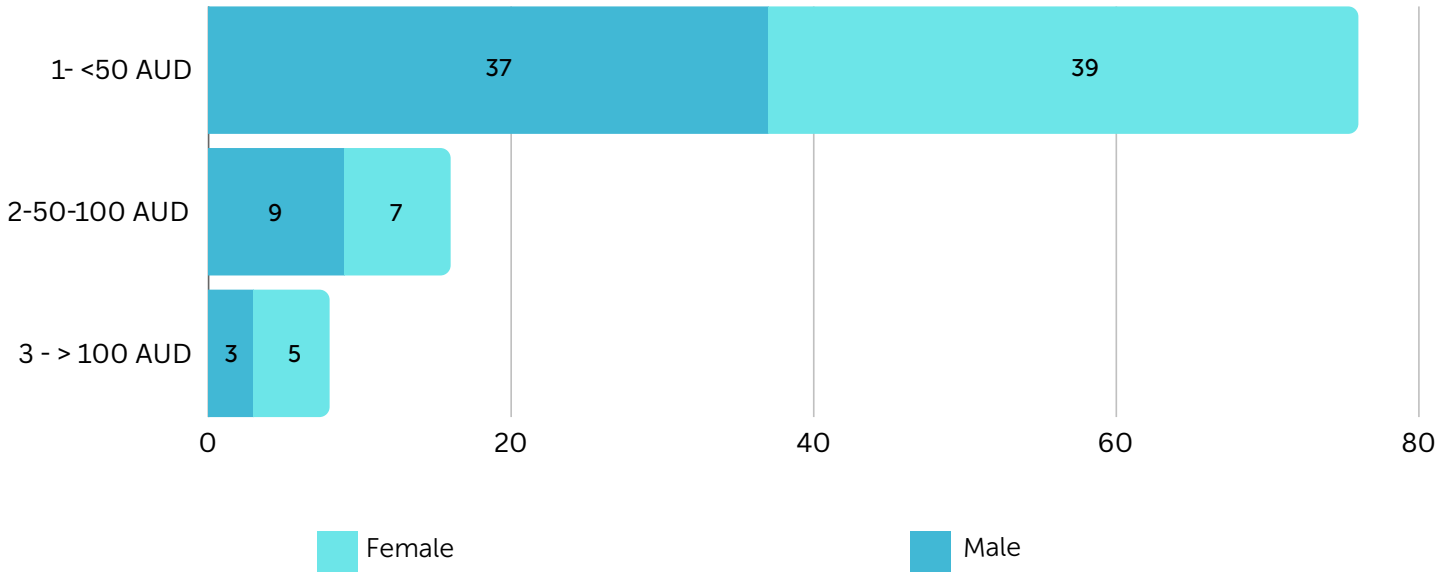
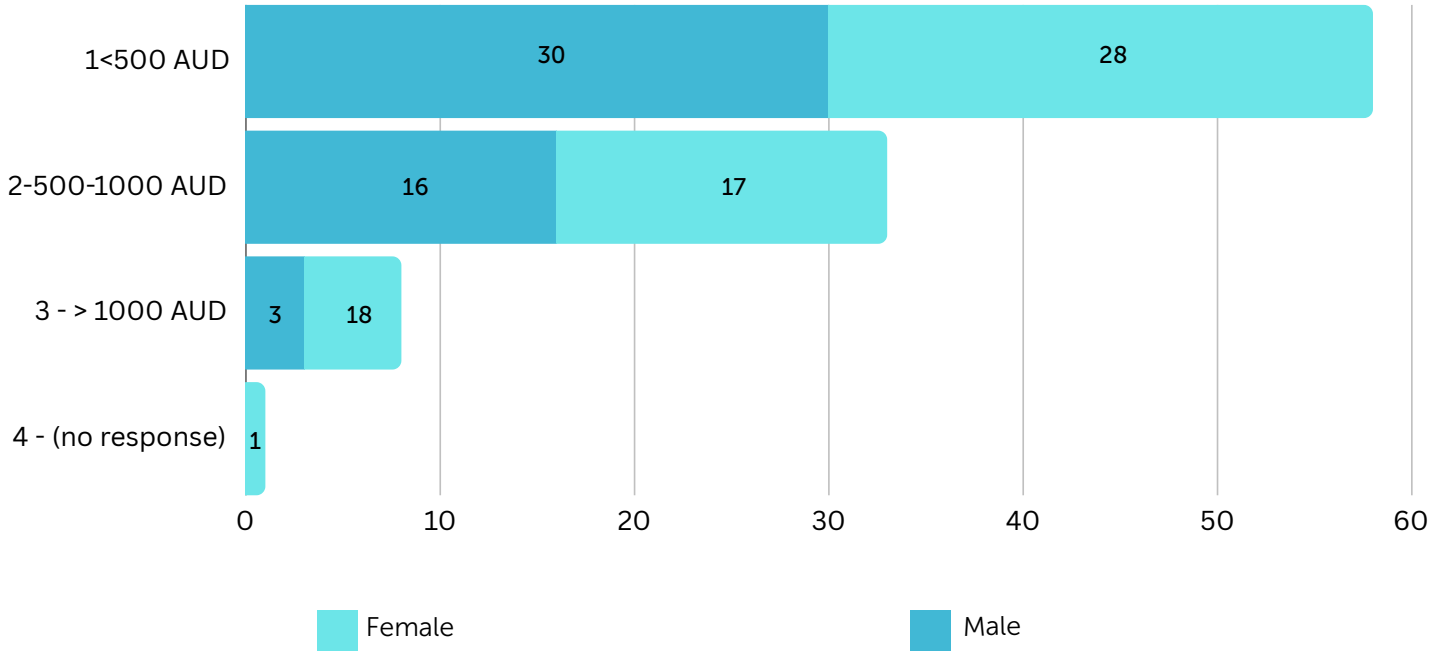


Figure 9 (b) Expected Coverage- in Percent



Conclusion

The participants in this demand study are representative of Kiribati's demography in that most women are financially reliant on farming activities, most men on fishing activities; and incomes are generally small and dependent on environmental factors. Therefore, the livelihoods of virtually the entire population of Kiribati are highly vulnerable to natural hazards. Women are particularly vulnerable as, on top of potential damage to equipment, soil and seedlings may not be recoverable for several months after droughts or floods, jeopardising their primary source of income. Moreover, women as well as PWDs are more affected by reduced or lost access to clean water used for drinking and every-day household chores. The latter group is dependent on social welfare and the government's ability to deliver, in general. However, during and after the disaster, all other groups likely find themselves dependent on government assistance as well.

More formalised institutions such as banks but also associations are dissimilarly accessible in urban South Tarawa and in the outer islands, and existing insurances are predominantly tied to employment with the government or state-owned enterprises. There are widely shared beliefs that financial services require one to have money to save or money to transfer, and that insurance is for those who have salaried income to pay for it. In spite of this, interest to explore new financial services, such as insurance bundles covering natural hazard risks as well as life and health, exists. Hesitance for their acceptance is to be expected and many will only sign up for innovative packages when they see their efficient use and their palpable benefits through early adopters in their inner circle. In this context, it is important to note that most I-Kiribati are not proficient in the English language. For new services to be understood conceptually requires for their presentation to be in the Kiribati language or in addition to English.

It is critical that financial institutions put in place an actionable, transparent and comprehensive plan for the introduction of a suit of CDRFI, especially in light of natural hazards becoming more frequent and severe as a consequence of climate change. In order for financial instruments to be implementable and cost-effective, financial institutions and other relevant stakeholders should include a climate and disaster risk financing strategy as a component of their DRM plan. Financial instruments are a crucial requirement but not sufficient and effective if they are not tailored to needs of the intended beneficiaries. Moreover, DRM plans need to address long-term climate risks and provide adequate resources for adaptation.

Next Steps

In developing effective CDRFI solutions, the following suggestions have been proposed:

1. Product Development

a. The demand study validates the need for climate insurance products that addresses drought and storm surges.

b. The only insurance company in Kiribati – Kiribati Insurance Corporation currently offers life and non-life insurance products. The only life insurance services offered is Life endowment with profits. The seven major classes in the Non-life are as follows: Motor (vehicles and Motor cycles); Marine; Aviation; Fire & Allied perils; General Liability; Workmen Compensation; General (Miscellaneous- Those that do not fit in the above classes). Provide KIC with the necessary support to develop appropriate and affordable parametric insurance product to address climate vulnerabilities in Kiribati.

c. Link KIC with risk modelling agencies and reinsurance providers to support the development and rollout of parametric microinsurance product in the country. Agricultural yield or production data is not publicly available on the MELAD or Statistical Office's websites. Kiribati is operating five meteorological stations – in Tarawa for the Gilbert Group, in Kiritimati for the Line Group and in Beru, Kanton and Tabuaeran[18].

d. Linkages to other finance: Kiribati Development Bank (KDB) have agricultural loans available for smallholder farmers via branches in different islands. KDB experiences credit defaults mostly due to natural disasters, such as tidal waves, strong winds, low fishing and low yield for coconuts. KDB also experiences a challenge with customers not being aware of the proper banking practices, including collateral requirements and interest rates etc. The study identifies interest for bundled products and the identified challenges from KDB presents an opportunity to partner with KIC to offer innovative CDRFI solutions that address the needs of i-Kiribati.

2. Supply and Distribution Channel

a. Digital platform: Enable partnerships with Vodafone Kiribati to reach new underserved market segments and help keep premium costs low. The mobile operator will also play a vital role in scaling parametric insurance in Kiribati.

b. Corporates: To reach scale, partnerships with corporates will be established to act as either an aggregator to onboard employees to the parametric insurance product or to add parametric insurance as an employee benefit.

c. Ministry of Finance: establish partnership with Ministry of Finance to strengthen the resilience and coping capacities of the most vulnerable segment of the community.

d. Other key stakeholders identified for the implementation of agriculture and/or climate risk insurance in Kiribati are the following:

   i. Ministry of Environment, Lands and Agriculture Developments

   ii. Kiribati Copra Milling Company

   iii. Commercial Bank – Australia New Zealand Bank Kiribati is the only commercial bank.

18 https://www.pacificclimatechangescience.org/wp-content/uploads/2013/09/Kiribati.pdf

iv. Development Bank of Kiribati

v. Kiribati Provident Fund

3. Awareness and Capacity Building

a. Build capacity of KIC staff to provide them with a deep understanding of parametric microinsurance concepts, applications, effective claims managements, benefits, and challenges.

b. Support KIC in awareness-raising and marketing campaigns to help I-Kiribati better understand what parametric microinsurance is and how it works. Awareness materials to clearly explain product features, the risks covered and excluded, eligibility for the product, cost structures, and consumer rights and feedback mechanisms.

c. Joint awareness campaigns with community associations will be crucial in reaching wider audience and building customer trust.

About UNCDF:

The UN Capital Development Fund makes public and private finance work for the poor in the world's 46 least developed countries (LDCs). UNCDF offers "last mile" finance models that unlock public and private resources, especially at the domestic level, to reduce poverty and support local economic development. UNCDF's strategy 'Leaving no one behind in the digital era' is based on over a decade of experience in digital financial inclusion in Africa, Asia and the Pacific. UNCDF leverages digital finance in support of the Sustainable Development Goals (SDGs) to achieve the vision of promoting digital economies that leave no one behind. The goal of UNCDF is to empower millions of people by 2024 to use services daily that leverage innovation and technology and contribute to the SDGs. To achieve this vision UNCDF uses a market development approach and continuously seeks to address underlying market dysfunctions that exclude people living in the last mile. https://www.uncdf.org

About UNU-EHS:

The United Nations University – Institute for Environment and Human Security is based in Bonn, Germany and conducts research on risks and adaptation related to environmental hazards and global change. The institute's research promotes policies and programmes to reduce these risks, while taking into account the interplay between environmental and societal factors. Research areas include climate change adaptation by incorporating insurance-related approaches, environmentally induced migration and social vulnerability, ecosystem-based solutions to adaptation and disaster risk reduction, and models and tools to analyse vulnerability and risks linked to natural hazards, with a focus on urban space and rural-urban interfaces. UNU-EHS also offers the joint Master of Science degree programme "Geography of Environmental Risks and Human Security" with the University of Bonn and hosts international PhD projects and courses on global issues of environmental risks and sustainable development. http://ehs.unu.edu

About UNDP:

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. The UNDP Pacific Office in Fiji serves 14 countries and territories in the Pacific, as part of the 177-country office UNDP network, and offers global perspective and local insight to help empower lives and build resilient nations. www.pacific.undp.org


UNU
EHS


UN
DP


UN
CDF
Impact Capital
for Development